STATE OF MINNESOTA DISTRICT COURT

COUNTY OF RAMSEY SECOND JUDICIAL DISTRICT

- -

The State of Minnesota,
by Hubert H. Humphrey, III,
its attorney general,
and
Blue Cross and Blue Shield
of Minnesota,

Plaintiffs,

vs. File No. C1-94-8565

Philip Morris Incorporated, R.J.
Reynolds Tobacco Company, Brown
& Williamson Tobacco Corporation,
B.A.T. Industries P.L.C., Lorillard
Tobacco Company, The American
Tobacco Company, Liggett Group, Inc.,
The Council for Tobacco Research-U.S.A.,
Inc., and The Tobacco Institute, Inc.,

Defendants.

- -

DEPOSITION OF SCOTT APPLETON

Volume I, Pages 1 - 295

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(The following is the Deposition of SCOTT APPLETON, taken pursuant to Notice of Taking Deposition, by videotape, at the offices of Dorsey & Whitney, Attorneys at Law, Pillsbury Center South, 220 South Sixth Street, Minneapolis, Minnesota, on September 22, 1997, commencing at approximately 8:40 o'clock a.m.)

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E X A M I N A T I O N I N D E X

WITNESS	EXAMINED BY	PAGE
Scott Appleton, Ph.D.	Ms. Wivell	6

http://legacy.library.ucsf.edu/tid/izn05a00/pdf
Source: http://www.industrydocuments.ucsf.edu/docs/psxd0001

E X H I B I T I N D E X

EXHIBIT (Plaintiffs')	DESCRIPTION	PAGE
4400	Expert Report of Dr. Scott Appleton	24
4401	Smoking and Health, Surgeon General's Report, 1964	35
4402	Reducing the Health Consequences of Smoking, 25 Years of Progress, Surgeon General's Report, 1989	119

http://legacy.library.ucsf.edu/tid/izn05a00/pdf
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P R O C E E D I N G S

(Witness sworn.)

SCOTT APPLETON,

called as a witness, being first duly sworn, was examined and testified as follows:

ADVERSE EXAMINATION

BY MS. WIVELL:

Q. Sir, would you please introduce yourself to the ladies and gentlemen of the jury?

A. My first name is Bernard, Scott Appleton. I go by my middle name, Scott.

Q. Sir. You're currently employed by Brown & Williamson?

A. Yes, ma'am.

Q. You've been employed by Brown & Williamson since 191, right?

A. Yes, ma'am.

Q. And what is your current position?

A. My position is director of scientific and regulatory affairs.

(Interruption by the reporter.)

Q. Now Brown & Williamson is not the first tobacco company that you've worked for, is it?

A. That's correct.

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Q. You previously have worked for R.J. Reynolds; right?
A. Yes, ma'am.
Q. You worked for R.J. Reynolds for how long?
A. Approximately four years.
Q. So it would be fair to say, wouldn't it, sir, that for the past -- for at least 10 years of your professional career, cigarettes have paid your salary.
A. I have been employed by tobacco companies, yes.
Q. And those tobacco companies make cigarettes; right?
A. Yes, they do.
Q. All right. And you would agree that you're paid out of the profits from those cigarette sales; right?
A. I guess so.
Q. All right. So it would be fair to say that for at least 10 years of your professional career cigarettes have paid your salary; right?
MR. McGAAN: Object, asked and answered.
THE WITNESS: I'm sorry, --
MR. McGAAN: That's an objection for the record. You can answer the question again that you already answered.
A. Well I have worked for tobacco companies, and

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they pay me.
Q. All right. Well sir, you've been deposed before, haven't you?
A. Yes, ma'am.
Q. On how many occasions?
A. Three.
Q. What was the first occasion?
A. One was a -- it was for -- on behalf of R.J. Reynolds Tobacco Company. I don't know the particulars of the case, all I know is that my testimony was related primarily to ingredients used in the manufacture of cigarettes. I'm not sure if I can even get the plaintiff correctly if I tried to describe it.
Q. Was the plaintiff a person?
A. That's my understanding.
Q. A person who alleged that they had been injured as a result of cigarette smoking; right?
A. I'm not really sure because I know that -- there may have been something to do with asbestos in the case too, I just don't know the details and the particulars.
Q. Well sir, you would agree that you have a portion of that deposition; right?
A. Yes, I do.

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Q. All right. And you understand that a -- that that was a two-day deposition?
A. Yes, ma'am.
Q. Part of the -- I'm sorry. Strike that.
The second day was sealed?
A. My understanding is that the entire deposition is regarded as being sealed.
Q. Well sir, you testified a second time in the Broin case, didn't you, sir?
A. A second time? Well yeah, the second time I testified, the second deposition I gave was for Broin.
Q. All right. And at that time you were asked how much of the deposition was sealed and you said the second day essentially was sealed. Didn't you?
A. That was my belief at the time, yes.
Q. Now sir, you also testified concerning the nature of that deposition, quote, I described the nature of ingredients used, the types of different ingredients, the procedures that we used to evaluate the acceptability and suitability of the various ingredients in tobacco products. Do you recall that, sir?
A. Yes, ma'am.
Q. And you also went on to say, those are the major

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issues that I recall. There was some discussion about regulatory status of ingredients and some health-effects issues; right?

A. Yes, ma'am.

Q. And then you went on -- you were asked what were the health-effects issues; right?

A. I believe so.

Q. And then you answered questions as to whether or not, in my view, use of various ingredients had any material impact on the basic nature of the cigarettes or tobacco smoke; right?

A. Yes, ma'am.

Q. And then you were asked what was the opinion you rendered at that time, and you answered, after describing the procedures that we used to evaluate ingredients, view was that there's insufficient evidence to conclude the use of ingredients affects the nature of cigarette products insofar as health effects are concerned. Do you recall that, sir?

A. Yes, ma'am.

MS. WIVELL: Now I would like to make a statement for the record. Before Dr. Appleton's deposition, I made a request both in writing and orally to defense counsel in this case for all of Dr. Appleton's prior depositions, pursuant to point 14 of

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the stipulated order establishing protocol for expert witness depositions. That point says, all prior depositions in smoking-and-health litigation of experts identified in this case shall be produced to opposing counsel as soon as reasonably possible, no later than 21 days, to the extent these depositions were not previously produced pursuant to paragraph 7 (c) of the order of December 30th, 1997, and to the extent that either the expert, a party in this litigation or counsel for a party in this litigation has a copy of the transcript of any such deposition.

I'd like the record to reflect that despite my requests, I was not provided a copy of Dr. Appleton's testimony in the case that he was referring to where he testified as an R.J. Reynolds employee that we have just talked about in this part of the record. I'm going to state that the plaintiffs will object, unless we are provided with that testimony today, to any portion of Dr. Appleton's deposition being played, or to the appearance of this witness in any role at trial because we were not -- because there has been a violation of point 14 of the stipulated order and we have not been provided his testimony, which pursuant to both his testimony in Broin and today relate to smoking-and-health issues.

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I would appreciate receiving a copy of the transcript. If counsel is aware that anyone in this litigation, R.J. Reynolds or anyone has made an order for protection, I would appreciate being apprised of that motion for protection. If not, I'd like a copy of that deposition. We're entitled to it, and I'd like to have it now so that we can review it before going forward.

MR. McGAAN: The -- The deposition to which counsel refers is a case called Shires versus Celotex that was, and for all I know may still be pending in the Eastern District of Pennsylvania. As counsel knows, and failed to state for the record in her self-serving statement, the position of R.J. Reynolds Tobacco Company in that deposition is under seal by court order. I communicated that position to counsel last week in writing and orally. I even gave the name of the RJR attorney at Wombel Carlyle who informed me that the deposition is under seal by an order of a federal court in Pennsylvania. I don't know that efforts have been made by the plaintiffs to contact RJR to inquire further about that. Our hands are tied. I don't see anything in this case or in the orders from the judge in this case that even attempt to override standing orders of federal

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judges. Therefore, I'm in no position to turn over a copy of the transcript, nor do I have a copy of that transcript with me today.

BY MS. WIVELL:

Q. Sir, you have a copy of a portion of that transcript, don't you?

MR. McGAAN: That's been asked and answered.

A. Right. I have a copy of a portion of it, yes.

Q. Did you bring it with you today?

A. No.

Q. Did anyone tell you not to bring it with you today?

MR. McGAAN: Object. Don't answer questions about conversations with counsel, Dr. Appleton. Ms. Wivell knows that's an improper question.

THE WITNESS: Okay.

Q. Sir, you understand that your deposition is being taken here today in two regards, both as an expert witness and as the 30.02(f) designee of Brown & Williamson; right?

A. Yes, ma'am.

Q. I'd like to focus for a moment on that 30.02 (f) designation.

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A. Okay.
Q. You understand that the plaintiffs served a deposition notice on Brown & Williamson asking that the corporation designate a person knowledgable to speak about smoking and health effects of tobacco, and cigarettes in particular; right?
A. Yes, ma'am.
Q. And you have been designated by Brown & Williamson to speak on its behalf; right?
A. Yes, ma'am.
Q. Now sir, have you agreed to speak on its behalf as its designee here today on the issues of smoking and health?
A. Yes.
Q. You have authority to do so?
A. I believe so.
Q. Brown & Williamson told you it wanted you to speak on its behalf here today?
A. Yes.
Q. Do you understand that your answers are binding on the corporation?
MR. McGAAN: Object. That -- That question's out of bounds. This witness doesn't have any foundation to testify regarding the significance or lack of significance of the Minnesota procedural

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rules or legal matters generally.

MS. WIVELL: I object to your violation of the court's order and if it continues I'll call the court to make sure it doesn't continue to happen.

MR. McGAAN: The -- The statement I just made is not a violation of the court's order, I've read it as well as you have.

BY MS. WIVELL:

Q. Sir, do you understand that your answers are binding on Brown & Williamson?

MR. McGAAN: Object, lacks foundation, calls for a legal conclusion.

A. Yeah, I think you're asking me a legal conclusion, and I don't know what the rules of the proceedings are in this state, what binding means. I think you are asking for a legal conclusion. I don't know if I'm in a position to give you an accurate answer.

Q. Well what do you understand your role as a 30.02 (f) designee to be, sir?

A. To speak about various aspects of cigarette manufacture, of smoking and health, of parts of the business that we conduct that I'm familiar with. Mostly to speak as a scientist, is my understanding.

Q. All right. Well let's talk about your role as a

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scientist. Do you have a Ph.D. in toxicology; right?
A. Yes, ma'am. [you have].
Q. All right. Are you licensed to practice medicine in any state?
A. No.
Q. Have you ever been to medical school?
A. No.
Q. Do you have any medical training?
A. Well I took a -- Well toxicology is multi disciplinary, and as such I end up taking a lot of the same courses that -- in the case where I went to school, where doctors of veterinary medicine took, I took a lot of pathology, physiology, anatomy, histology, pathology, biochemistry, toxicology, so I've taken a lot of courses and a lot of training that are very similar, but not exactly the same, and I read a lot in those areas as well,.
Q. Okay.
A. -- but I'm not a licensed medical physician.
Q. All right. But going back to my question to be a little more specific, those courses that you took were involved with veterinary medicine; right?
A. Yes.
Q. All right. They were not in the school -- in any school of human medicine, were they?

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A. No, ma'am.
Q. And sir, you've never taken any medical school courses, have you?
A. Well I don't -- I don't know if all the courses that medical students take are strictly speaking in the medical school. For example, I took human anatomy and physiology which were among the courses that medical students would take when I was in graduate school but they weren't in a formal school of medicine, they were taken department of physiology and anatomy.
Q. Okay. But let me rephrase my question a little more specific.
You've never taken any course -- any courses that were offered in any school of medicine, human medicine; right?
A. No, not -- not in a school of human medicine, no.
Q. Okay. And as a matter of fact, you are not qualified to diagnose what causes disease in a particular individual, are you?
A. I think I'm qualified to render a scientific opinion based on the totality of the available information beings. As I said, the information regarding smoking and health spans a wide range of

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disciplines, many of which are not taught in medical schools. And I -- I have expertise in a lot of those areas and I do a lot of reading in those areas, so as part of my responsibility of monitoring smoking-and-health literature, I read and study in those areas and I've had exposure to those areas, as well as formal training.

Q. Well does that information render you qualified to make a diagnosis of what causes disease in a particular human?

A. I would not say what renders me qualified to make a diagnosis in the medical term, because that would be practicing medicine, which would not be legal, but I can give a scientific opinion about what I think the science and evidence available says.

Q. Well sir, are you suggesting that you're equally qualified with a medical doctor to determine what causes disease in a particular human being?

MR. McGAAN: Object, mischaracterizes his testimony.

A. I have different qualifications than a medical doctor. There are areas where the medical doctor may be more qualified, and there may be areas where I'm more qualified in a particular scientific discipline. I'm not holding myself out to be a

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medical doctor, I'm not licensed to practice medicine, what I'm saying is I've been formally trained in a wide variety of health-effects disciplines which are part of an interdisciplinary academic program in toxicology and I've got a Ph.D. in that, I've got a minor in pathology and a minor in human nutrition, so I have formal training that span a wide range of formal health-effects disciplines, plus in my various responsibilities throughout my career I've done an enormous amount of reading in these areas in various disciplines.

Q. Well sir, you're not meaning to imply to the ladies and gentlemen of the jury, are you, that you are as qualified as a medical doctor to make a determination about what causes disease in a particular human being, are -- do you?

MR. McGAAN: Object, mischaracterizes the testimony, asked and answered.

A. My answer is the same. It's -- There are going -- There are bound to be areas where any particular physician or scientist is certainly more skilled and has more experience than I do in certain areas, and there are also going to be areas where I've got more expertise and training and discipline and reading in certain areas.

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Q. Well just so we're clear here, you would agree there's no state in this United States which allows you to go into a hospital and make a diagnosis about what causes any individual's particular disease; right?
A. Yes, ma'am. I would agree with that.
Q. All right. And you would also agree that there's no state in this United States that allows you to prescribe medicine; right?
A. That's correct.
Q. Okay. And those areas are the province of medical doctors; right?
A. Yes, ma'am.
Q. Okay. They're not the province of toxicologists; right?
A. That's correct, unless they happen to have a medical degree.
Q. Unless they -- Precisely. And you don't have one of those.
A. No.
Q. Okay. Now sir, you're not qualified to make a determination about what caused a particular individual's death, are you?
A. I'll restate my answer. I've got training and experience in a lot of health-effects areas. I've

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got a Ph.D. in toxicology, I've got a minor in pathology and nutrition, all of which are relevant to the overall issue. The smoking-and-health issues span a very wide range of disciplines, many of which aren't taught in medical school, like nutrition, for example. They may get some courses in that, but not nearly as much as I've gotten. There may be a lot of biochemical or molecular biology areas that they hadn't received formal training in. They may have a lot of training in areas that are relevant that I haven't got training in.

(Interruption by the reporter.)

A. I don't know if it's -- you can make a direct comparison. I can just tell you what my background and training is and what I feel like I'm qualified to give scientific opinions on.

Q. Well sir, let me is ask a little bit differently. Is there any state in the union that would allow someone with a Ph.D. in toxicology and no degree in medicine to determine for a death certificate what a person died of, what their cause of death was?

MR. McGAAN: Object, ambiguous.

A. Well I think you're asking the same question you've already asked several times, and I believe,

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no, I cannot practice as a physician.

Q. All right.

A. I think we've been through that.

Q. And sir, there's no state in the union that would allow you to fill out a death certificate, is there?

A. Not that I know of.

Q. Okay. That's because there are courses that medical doctors are required to take and show competent in -- competence in that toxicologists just aren't required to take; right?

MR. McGAAN: Object, lacks foundation as phrased.

A. Whether or not they take courses in filling out medical certificates or causes of death, I don't know, but I know that there are courses that medical doctors take that toxicologists typically don't have in their curriculum, if that's the question you're asking me. Yes, the curriculum is not identical between the two, but there's a lot of overlap.

Q. Now sir, is there any doctor on staff at Brown & Williamson that you've discussed your opinions with?

A. "Doctor," you mean medical doctor?

Q. Medical doctor, yeah.

A. No.

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Q. All right. Brown & Williamson's never had a medical doctor on its staff, has it?
A. I don't know if they've never had. I can only tell you what I -- what's -- what we have today. I don't believe we have a medical doctor on staff.
Q. And as a matter of fact you were the first toxicologist that Brown & Williamson ever employed. Isn't that true?
A. Well you mean with a formal Ph.D. in toxicology or --
Q. Yes, sir.
A. -- someone with expertise in toxicology?
Q. You were the first person with a formal Ph.D. in toxicology -- toxicology who was ever employed by Brown & Williamson; right?
A. The formal training for toxicology and the conferral of formal toxicology degrees is relatively new. That's only been going on for 10 or 15 years. To my knowledge, I'm the first person that's had a formal degree in toxicology, yes.
Q. Is there a board in toxicology, sir?
A. There's actually several. The major board-certifying organization is called the American Board of Toxicology.
Q. Now when you were with R.J. Reynolds, were there

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any medical doctors that you were able to discuss your opinions with who were on staff at R.J. Reynolds?

A. Not that I was aware of. There may have been, but I wasn't aware of anyone with an M.D. degree.

Q. Now sir, you have written a report that you submitted here in the State of Minnesota, didn't you?

A. Yes, ma'am.

(Plaintiffs' Exhibit 4400 marked for identification.)

BY MS. WIVELL:

Q. Sir, showing you what's been marked as Plaintiffs' Exhibit 4400, is this the report that you put together in order to express the opinions that you are going to be talking about in this case?

A. Well when you say I "put together," I contributed to its preparation, I approved the final draft. The way the report was constructed was with interviews with me and various lawyers where we talked about these issues, I gave my opinions, I referred them to literature and research and documents, the report was prepared and then exchanged back and forth between me and my attorneys to make sure that I understood and agreed with the language in it. I didn't actually draft it, but I did

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contribute to the substance of it through interviews and finally reviewing the final document to make sure that I agreed with it.

Q. All right. Just so we're clear, here, the report that you're just talking about when you described that process has been marked as Exhibit 4400; right?

A. That's correct.

Q. But you did approve what it says in Exhibit 4400.

A. Yeah.

Q. But it was actually written by lawyers; is that right?

A. Yes.

Q. Lawyers for Brown & Williamson?

A. Yes.

Q. Okay. Now sir, I'd like to show you what's previously been marked as Plaintiffs' Exhibit 326. Have you seen Exhibit 326 before?

A. No.

Q. Why don't you take a moment and review it, sir.

MR. McGAAN: You said this was 326?

MS. WIVELL: Umm-hmm.

(Discussion off the stenographic record.)

A. Okay. I've reviewed it briefly but not in

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absolute detail. I assume that I'll have that opportunity when you ask me specific questions.

Q. All right. Well sir, you understand that plaintiffs ask, as part of the legal process, Brown & Williamson to admit certain things.

A. Yes.

Q. And you understand that Exhibit 326 are Brown & Williamson's responses to what are called Plaintiffs' Requests for Admissions; right?

A. Well that's the way it appears, yes.

Q. All right. Now the plaintiffs in this case are the State of Minnesota and Blue Cross\Blue Shield. Do you understand that?

A. Yes.

Q. All right. And can we agree that in this deposition today and tomorrow that we'll be talking, when we talk about "this case," that we're talking about the case brought by the State of Minnesota and Blue Cross\Blue Shield?

A. Yes.

Q. You understand that that is not a case that's been brought by any individual person claiming smoking and health is -- or smoking has caused disease; right?

A. Yes. Well if you tell me that, yes.

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MR. McGAAN: Let me just interject. Quite apart from your examination, Ms. Wivell, this deposition has been cross-noticed in at least one other case that involves individuals and different claims. I just want the record to be clear that there is a cross-notice, but it doesn't impact whatsoever on your examination of Dr. Appleton on this point.

MS. WIVELL: And that's one of the reasons why I defined "this case" the way I did, so that we can make sure that we're all talking on the same wavelength here.

MR. McGAAN: I understand.

BY MS. WIVELL:

Q. You understand that this case is a case where the state and Blue Cross\Blue Shield are asserting that they have a right to get back payments that were made -- that they made on behalf of -- or to pay healthcare costs for smokers; right?

A. That's my general understanding, yes.

Q. Okay. And that as part of this case, the plaintiffs asked Brown & Williamson in request number 1 to admit that smoking causes cancer; right?

A. Yes.

Q. And Brown & Williamson essentially denied that

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smoking causes cancer; right?

MR. McGAAN: Object, mischaracterizes the document.

A. Well, can I read the response?

Q. Go ahead.

A. The request number 1 it says, "admit that smoking causes cancer," and then response to request number 1, "Smoking is widely reported as a risk factor for certain types of cancer. Numerous other factors are also reported to be risk factors for cancer, including but not limited to, genetic, environmental, social, and behavioral factors. The causes of cancer are complex and have not been scientifically established. Brown & Williamson therefore denies that it has been scientifically established that cigarette smoking causes cancer and denies Request No. 1. Request No. 1, as phrased, is vague and ambiguous."

Q. All right. But you would agree, now having read that, that essentially when you get down to the bottom line --

(Outside interruption.)

MS. WIVELL: Why don't we go off the record for a minute, please.

THE REPORTER: Off the record, please.

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(Discussion off the record.)

BY MS. WIVELL:

Q. Sir, having read Brown & Williamson's response to plaintiffs' request that it admit that smoking causes cancer, you would agree that the bottom line is Brown & Williamson denies that it has been scientifically established that cigarette smoking causes cancer; right?

MR. McGAAN: Same objection.

A. Well it seems that there's several conclusions in here. One is that there's a denial because the phrase is vague and ambiguous. At least that's my understanding as I read this.

Q. All right. Well let's look at that request that -- that the plaintiffs said. They said "admit that smoking causes cancer." What part of that is vague and ambiguous, sir?

A. To me the word "cause" is, because what "cause" calls for is an assessment or a determination, and in my view where you come out on that assessment depends on what your objectives are in making that assessment and what your assessment criteria are. If, for example, you're a public-health authority and you want to make an assessment for the purpose of determining whether or not it's appropriate to warn

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the public about possible dangers of smoking, and your assessment criteria are primarily epidemiological evidence, then I think that one would conclude that smoking causes cancer.

If, on the other hand, you're a cigarette manufacturer and you're looking at the problem and trying to decide what aspect of your product to modify or correct in order to respond to the issue, it's more appropriate to apply more rigorous assessment criteria.

What I would propose is that in addition to epidemiological evidence, you would need to look at evidence about constituent toxicology; namely constituents in smoking, you'd need to look at evidence concerning bioassay of cigarette smoke in animal tests, and you'd need to look at some basic information about mechanisms. When we do that and we apply that to the problem of what do we need to do to fix cigarettes to address the many issues that are being raised about them, we acknowledge the epidemiological evidence is there, and that's what we say here by saying it's a risk factor, but if you say well what aspect about the product is it that's causing the problem, we don't know and no one can tell us. When you say what constituent in smoke is

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it that's responsible for disease, no one really knows and so we're left with a question mark. If you ask what tests, what biological tests, either on bacteria or mice or cells or whatever, is an appropriate measure of the disease-causing potential of cigarette smoke, no one can tell us. And certainly we don't know the mechanisms of disease. So in some cases I feel it's more appropriate to apply more rigorous criteria. When we do that to this problem we're left with question marks and so we -- we're uncertain. Now because we're uncertain, we do not say that cigarette smoking does not cause disease, as I have read characterized in some depositions by the plaintiffs.

Q. Well sir --

A. I'm not finished with my answer yet.

Q. Oh, I'm sorry.

A. So we don't say cigarette smoking does not cause disease, we acknowledge the epidemiological evidence, but at the end of the day when you apply more rigorous criteria we say we simply don't know, it may cause disease.

Q. Well sir, in this response to plaintiffs' request which we've marked as Plaintiffs' Exhibit 326, Brown & Williamson actually says, quote, the

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causes of cancer are complex and have not been scientifically established. Brown & Williamson therefore denies that it has been scientifically established that cigarette smoking causes cancer and denies request number 1; right?

A. Well the -- Yeah, and I think that it says "complex" is what I just said. When you apply more rigorous criteria and you look at the issue of constituent toxicology, which constituents in smoke causes these, no one knows; what aspects of the product need to be modified in order to correct the problem to the extent there is a problem, no one knows; what tests do we use to measure progress in a product modification program, no one knows; what are the mechanisms, no one knows. It is complex. There's a lot of issues.

(Interruption by the reporter.)

A. It is complex and there's a lot of issues, but I think the answer does acknowledge the epidemiological evidence which I said if you're in the position of a public-health authority and your assessment criteria involved --

(Interruption by the reporter.)

A. -- the use primarily of epidemiological evidence, one would certainly conclude that smoking

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causes disease.
Q. Well sir, in your expert report you gave a list of materials that you relied on to come to your opinions, didn't you?
A. Yes.
Q. Could you find that list of treatises that you relied on?
A. What do you mean when you refer to my list of treatises?
Q. Well sir, I'm looking at a part of your report entitled "Scott Appleton, Principal Treatises Relied On."
MR. McGAAN: It's actually not part of the report, but it's part of the disclosure.
Q. Do you see that, sir?
A. Yes.
Q. All right. Did you approve this list of -- this three-page list of treatises as those that you relied on before the defendants, Brown & Williamson, released it to the plaintiffs?
A. Yes.
Q. All right. So these things that are listed here are treatises that you rely on for coming to the opinions you've just expressed; right?
A. In part.

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MR. McGAAN: Object. Object, it mischaracterizes what the document says.

A. In part, yes, but it would be impossible to list everything that I rely on because it spans 18 years of formal training and experience.

Q. But the treatises that are listed here on these three pages under the heading "Scott Appleton Principal Treatises Relied On" in Exhibit 4400 are those -- are those that you considered significant and relied upon in coming to the conclusions which you have just expressed and which you also express in your expert report; right?

A. These -- These are primary treatises, yes, but not by any means all of them.

Q. I understand, but let's just focus on the ones that are here.

A. Okay.

Q. Keeping in mind that these are not the exclusive list, but you would agree that the -- that the items that are listed here are treatises that you considered to be authoritative and that you've relied on in coming to your opinions; right?

A. In part, yes.

Q. Sir, one of those that you rely on is the 1964 report of the Advisory Committee to the surgeon

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general; right?

A. Yes, ma'am.

Q. Now sir, that is often referred to as the surgeon general's report, isn't it?

A. Yes.

Q. And you've read that report.

A. Yes.

Q. You consider it authoritative.

A. Well parts of it I agree with, parts of it I don't agree with, but certainly it's authoritative in that scientists of good standing quality contributed to its preparation.

(Plaintiffs' Exhibit 4401 marked for identification.)

BY MS. WIVELL:

Q. Sir, showing you what's been marked --

MR. McGAAN: I'm sorry to interrupt you, Marty, do you want this thing on it?

Q. Showing you what has been marked as Plaintiffs' Exhibit 4401, this is the report of the surgeon general that we were just referring to, isn't it, sir?

A. Well it looks like it.

Q. All right. Why don't you take a moment and look through it and see if it is indeed the

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smoking-and-health report of the Advisory Committee to the surgeon general of the Public Health Service that you have referred to on your list of principal treatises on which you relied.

A. It appears to be so but it looks rather large, maybe it's just the way it was copied, on one-sided paper.

Q. The original was on two-sided paper, wasn't it, sir?

A. Yeah, yeah, it was.

MR. McGAAN: If you say this is it, we'll take your representation. You don't have to spend time on it.

A. Yeah, let's assume it is. I mean, I believe it is, it looks like it. The cover looks like it.

Q. Now sir, you mentioned just a little bit ago that this particular document was put together by scientists of good standing; right?

A. Well yes, yes.

Q. And in fact those scientists or the committee that was made up of those scientists is listed on the third page of Exhibit 4401; right?

A. Yes.

Q. Now those people who are listed there, the 10 people are the folks who actually wrote this report,

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aren't they?
A. I'm sure they contributed to it. I don't know if they actually wrote it. I don't know who actually wrote it, but I would -- I would assume that they contributed their opinions, they reviewed it and they agreed to the final wording and draft.
Q. All right.
A. If that's what you mean by they "wrote" it.
Q. Okay. Well you've read the document, haven't you, sir?
A. Yes, ma'am.
Q. All right. And you know from reading it that the surgeon general of the United States didn't sit down and just jot off this particular document, did he?
A. I doubt it.
Q. Well you know that from reading it, don't you?
A. I can't tell from reading it whether or not he jotted it off or not.
Q. Well sir, didn't -- doesn't it say in the document that he appointed a committee drawn from all the pertinent scientific disciplines to review and evaluate both this new and older data -- or new and old data and to reach some definitive conclusions on the relationship between smoking and health in

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general?

A. Yes.

Q. He says -- The Surgeon General Terry says that in the forward that you're now looking at; right?

A. Right. And what paragraph are you referring to?

Q. I'm referring to the fourth complete paragraph. There he says, "Accordingly, I appointed a committee, drawn from --

A. Right.

Q. -- all the pertinent scientific disciplines, to review and evaluate both this new and older data and, if possible, to reach some definitive conclusions on the relationship between smoking and health in general. The results of the Committee's study and evaluation are contained in this report." Right?

A. Yes, ma'am.

Q. Okay. And you know from reading the report that not only did those 10 people who were on the surgeon general's committee contribute to the report, but they also had numerous consultants who assisted in the preparation of this report which has been marked as Exhibit 4401; right?

A. Well it's been awhile since I read it, I forgot exactly what the process was, but that sounds like it

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would be reasonable so I accept that representation.

THE VIDEO TECHNICIAN: Excuse me one moment, I need to go off video record.

(Recess taken from 9:19 to 9:28 a.m.)

BY MS. WIVELL:

Q. Sir, could you turn to page 9 of Part I of the 1964 surgeon general's report on smoking and health.

A. Yes, ma'am.

Q. Now sir, there is a list of not only the names of the individuals who served on the committee that advised the surgeon general on this report, but also a description of those people's qualifications; right?

A. Yes, ma'am.

Q. Now the first person who's listed is a Dr. Stanhope Bayne-Jones, an M.D.

A. Yes.

Q. Now Dr. Jones was former Dean at the Yale School of Medicine, former president of the Joint Administrative Board of Cornell University, New York Hospital Medical Center, the former president of the Society of American Bacteriologists, and the American Society of Pathology and Bacteriology; right?

A. Yes.

Q. And Dr. Stanhope Bayne-Jones' field of expertise

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was the nature and causation of disease in human populations; right?
A. Well that's what it says, yes.
Q. And you have no reason to disbelieve --
A. No.
Q. -- what's written here.
A. No, not at all.
Q. The next person who's listed is Walter Burnet, M.D., Ph.D.; is that right?
A. Yes.
Q. And Dr. Burdette was head of Department of Surgery, University of Utah School of Medicine in Salt Lake City.
A. Yes.
Q. And Dr. Burdette's fields of expertise were clinical and experimental surgery and genetics; right?
A. Yes.
MR. McGAAN: Let me interpose an objection. To the extent we're just reading from the document, it doesn't say "expertise," it actually says "fields of competence."
Q. Now sir, the next person who's listed is Dr. William G. Cochran -- I'm sorry.
The next person who is listed is William G.

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Cochran; right?

A. Yes.

Q. He was -- He had a master -- a masters in -- I'm sorry. Strike that.

He was a professor of statistics at Harvard University?

A. Yes.

Q. And his field of expertise was mathematical statistics with special application to biological problems; right?

MR. McGAAN: Same objection, mischaracterizes what the document actually says.

A. Well it says the "field," and then "mathematical statistics with special application to biological problems," yes.

Q. Well you understand that the "field" refers to the areas of expertise of these various individuals, don't you?

MR. McGAAN: Object, mischaracterizes what the document actually says and is therefore misleading.

A. I assume that's what it means.

Q. All right. Now sir, the next person who's listed is Emmanuel Farber, M.D., Ph.D.

A. Yes.

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Q. And Dr. Farber was chair of the Department of Pathology at the University of Pittsburgh.

A. Yes.

Q. And Dr. Farber's field of competence or expertise was experimental and clinical pathology; right?

MR. McGAAN: Same objection.

A. Yes.

Q. The next person who's listed is Lewis F. Fieser.

A. Yes.

Q. And that person has a Ph.D.?

A. Yes.

Q. He was the Sheldon Emory Professor of Organic Chemistry at Harvard University.

A. Yes.

Q. And his field of competence was chemistry of carcinogenic hydrocarbons; right?

A. Yes.

Q. The next person who is listed there is Jacob Furth, M.D.

A. Yes.

Q. And Dr. Furth was professor of pathology at Columbia University and Director of Pathology Laboratories at Francis Delafield Hospital in New

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York.

A. Yes.

Q. And Dr. Furth's area of expertise was cancer biology; right?

A. Yes.

MR. McGAAN: Same objection.

Q. John Hickam M.D. is the next person who's listed, isn't it, sir?

A. Yes.

Q. And Dr. Hickam was chair of the Department of Internal Medicine at the University of Indiana, Indianapolis.

A. Yes.

Q. And Dr. Furth's -- I'm sorry, Dr. Hickam's field of expertise was internal medicine, physiology of cardiopulmonary disease; right?

MR. McGAAN: Same objection.

A. Yes.

Q. Now the next person who is listed as taking part on the committee was Charles LeMaistre M.D., Professor of Internal Medicine at the University of Texas Southwestern Medical School, and Medical Director of Woodlawn Hospital in Dallas.

A. Yes.

Q. And his fields of expertise were internal

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medicine, pulmonary diseases, preventive medicine?
A. Yes.
MR. McGAAN: Same objection.
Q. And the next person who's listed was -- is actually from Minnesota; right?
A. I don't know if he's from Minnesota, but he was at the University of Minnesota.
Q. All right. And that was Leonard M. Schuman, M.D.
A. Yes.
Q. And Dr. Schuman was Professor of Epidemiology, University of Minnesota School of Public Health in Minneapolis.
A. Yes.
Q. And his field of expertise was health and its relationship to the total environment; right?
MR. McGAAN: Same objection.
A. Yes.
Q. Now the next person who's listed is Maurice H. Stevens, M.D., Ph.D.
A. I think it says "Seevers," not "Stevens."
Q. Sorry, you're right. The next person who's listed was Maurice H. Seevers, M.D., Ph.D.; right?
A. Yes.
Q. And Dr. Seevers was Chair of the Department of

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Pharmacology, University of Michigan at Ann Arbor.
A. Yes.
Q. And his field of expertise was pharmacology of anesthesia and habit-forming drugs; right?
MR. McGAAN: Same objection.
A. Yes.
Q. And then the chair of the committee was Luther Terry M.D., Surgeon General of the United States; right?
A. Yes.
Q. Now sir, in addition to the people who are listed there there were numerous subcommittees who had consultants who participated in the preparation of the 1964 surgeon general's report on smoking and health that we're looking at, Exhibit 4401; right?
A. I assume that's the case.
Q. Well you know that from reading the document, don't you, sir?
A. As I indicated before, it's been awhile since I read this, I don't remember all the details about the organization, the structure and the process by which this document was generated, but that sounds like a reasonable process to go through. I'll assume that that's correct.
Q. All right, sir. Would you turn to the page of

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this section of Exhibit 4401 that ends with the number 15 down in the lower right-hand corner.

A. This 4401?

Q. Yeah.

A. Page 15?

Q. Page 15 of the 1964 surgeon general's report.

A. Okay.

Q. And there in the last paragraph is a discussion of how this document was actually -- how this document actually came about; right?

A. Umm-hmm.

THE REPORTER: Your answer, please?

Q. You have to answer out loud, sir.

A. Oh, I'm sorry. Yes, ma'am.

Q. And it says "There were an uncounted number of meetings of subcommittees and other lesser gatherings"; right?

A. Yes.

Q. And it says, "Between November 1962 and December 1963, the full committee held nine sessions each lasting from two to four days in Washington or Bethesda"; right?

A. Yes.

Q. And it talks about the main matters considered at the meetings in October, November and December

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1963 were the review and revision of chapters, critical scrutiny of conclusions, and the innumerable details of the composition and editing of this comprehensive report; right?

A. Yes.

Q. Now sir, the next chapter of the surgeon general's report is entitled "Criteria for Judgment"; right?

A. Yes.

Q. And you understand that there actually were sessions at which the various members of the committee were schooled in criteria implicit in making scientific assessments; right?

MR. McGAAN: Object, lacks foundation unless we're just quoting from the document.

A. I don't have firsthand knowledge of that but that seems like it would be a reasonable process to go through.

Q. All right. Well would you turn to the page 19 that -- of Exhibit 4401, the 1964 surgeon general's report.

A. Yes, ma'am.

Q. And there do you see the heading "Criteria of the Epidemiologic Method"?

A. Well it says "CRITERIA FOR JUDGMENT."

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Q. That's at the top of the page; right?
A. Oh, okay. Yes.
Q. And right -- right toward the end of the page there is a heading --
A. Oh, yes.
Q. -- "Criteria for Epidemiologic Method."
A. Right.
Q. Would you please read to yourself the paragraph right before that heading, "Criteria for Epidemiologic Method."
A. Yes.
Q. It says there in part, "All members of the Committee were schooled in the high standards and criteria implicit in making scientific assessments;" right?
A. Yes.
Q. And it goes on to say that "if any member lacked even a small part of such schooling he received it in good measure from the strenuous debates that took place at consultations and at meetings of the subcommittees and the whole Committee"; right?
A. Yes, that's what the document says.
Q. All right. And then, sir, you understand from reading the document that there is evidence that these scientists did make scientific assessments

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about the issues of whether smoking caused disease; right?

A. Yes.

Q. And they did it not just on a public-health basis but on a scientific basis, didn't they, sir?

MR. McGAAN: Object.

A. I don't know where it says that, where it says what the objectives of their assessment were.

Q. Well sir, could you turn to the page that is numbered 8.

A. Okay.

Q. All right. Do you see there reference to Phase I and Phase II of the work that was proposed for this committee?

A. Yes.

Q. And the first phase was: "An objective assessment of the nature and magnitude of the health hazard to be made by an expert scientific Advisory Committee which would review critically all available data but would not conduct new research. This committee would produce and submit to the Surgeon General a technical report containing evaluations and conclusions." Did I read that right?

A. Yes, you did.

Q. Now sir, and you understand that the Phase I

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report that's referred to there, the objective assessment of the nature and magnitude of the health hazard, is the 1964 surgeon general's report, Exhibit 4401.

A. Yes, my understanding is that they're making the assessment, my belief is, based on the criteria that they developed, primarily from epidemiological evidence, is that it's for the purpose of making a determination of the possible nature and magnitude of the health hazard, ultimately to be applied to whether or not warnings ought to be issued to the public, or intervention programs or things along that line, --

Q. Well --

A. -- but not from the point of view that I described before, which was trying to assess whether or not a modified cigarette is in fact safe or safer.

Q. Well sir, keeping in mind that the surgeon general's committee wasn't looking at the issue of whether a modified cigarette was safe or safer, you would agree that the surgeon general's committee was trying to determine whether cigarettes cause disease; right?

A. "Cause" in the term that I -- with respect to as I expressed my belief, which is from a public-health

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point of view, relying primarily on epidemiological evidence, yes.

Q. Well sir, you don't mean to imply to the ladies and gentlemen of the jury that the surgeon general's committee looked just at the issue of epidemiology.

A. No, I said "primarily," I believe.

Q. Well sir, they didn't even look primarily at the issue. They looked at all of the scientific evidence then available, didn't they, sir?

A. The criteria that they describe for causation focused primarily on epidemiology.

Q. Well sir, that's not what they say in the report on page 20, is it? There they say, statistical methods cannot establish proof of a causal relationship in an association, and then they go on to --

MR. McGAAN: Let me get -- Can we just have the witness turn to page 20 and then follow along with what counsel's reading, that would be --

Q. Well sir, didn't -- Let me rephrase the question.

Didn't the surgeon general's committee look at the issue of causation not just from an epidemiological point of view, but also based on an evaluation of the Bradford-Hill postulates?

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A. I don't know what the Bradford-Hill postulates are, but the -- the criteria I'm referring to are above that section on causality, the ones listed here a), b), c), d) and e), and those criteria are primarily related to epidemiological associations.

Q. Well sir, don't you recognize a), b), c), d) and e) as the Bradford-Hill postulates?

A. I don't remember them as that, being named that, no.

Q. All right.

A. I always think of them as the surgeon general's criteria.

Q. So if they're the Bradford-Hill postulates you're just unaware of that; right?

A. That's correct.

Q. Well the --

A. I'm not disputing that they are.

Q. The report goes on to say, "To judge or evaluate the causal significance of the association between the" --

A. I'm sorry, could you please direct me to where you're -- exactly where you're reading?

Q. Right above a), b), c), d) and e), sir.

A. Beginning with what, "statistical methods cannot establish proof"?

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Q. Sir, does it say "To judge or evaluate the causal significance" --

MR. McGAAN: He's asking where.

A. I don't know where you're reading from.

Q. All right. Sir?

A. The sentence beginning "to judge or evaluate"?

Q. Yes. Sir, there it says, doesn't it, "To judge or evaluate the causal significance of the association between the attribute or agent and the disease, or effect upon health, a number of criteria must be utilized, no one of which is an" all-significant "basis for judgment. These criteria include:" And then are listed a), b), c), d) and e); right?

A. Well you said "all-significant basis" and I think it says "all-sufficient basis" for judgment.

Q. You're right. And then it says, "These criteria include:", and there is listed a), b), c), d) and e); right?

A. Yes.

Q. a) is "The consistency of the association."

A. The -- Yeah.

Q. b) is "The strength of the association."

A. Right.

Q. c) is "The specificity of the association."

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A. Correct.
Q. d) is "The temporal relationship of the association."
A. Correct.
Q. And e) is "The coherence of the association."
A. Right.
Q. Right. Now also the members of the committee, in trying to determine whether cigarette smoking caused disease, looked at other evidence of -- in addition to epidemiology, didn't they?
A. Yes, they did.
Q. They looked at animal studies.
A. Yes.
Q. They looked at laboratory studies, didn't they, sir?
A. Well "laboratory studies" is a broad characterization but they did look at studies that were conducted in laboratories.
Q. All right. They looked at clinical studies in human beings?
A. I believe so.
Q. They looked at autopsy studies done in human beings.
A. Yes, ma'am.
Q. And in fact in their report they talk about

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their conclusions with regard to each of those different kinds of evidence in addition to the epidemiological work that they assessed, didn't they?
A. Yes, ma'am.
Q. And in fact then they went on to discuss what they meant by causality; isn't that true?
A. I assume so. Where -- Can you point out to me where that discussion is occurring?
Q. Well on the page we're just looking at there's a heading marked "Causality"; right?
A. Okay. I didn't know if you -- I mean, you had already gone deeper and deeper and deeper into the report in the various areas, so I thought perhaps you were referring to something in the back of the report.
Q. All right. And they define in here what they mean by "causality"; right?
A. Yes. Well there is a discussion about it, yes.
Q. All right. And they say, "The situation of smoking in relation to health of mankind includes a host (variable man) and a complex agent (tobacco and its products, particularly those formed by combustion in smoking)"; right?
A. I'm sorry, you lost me again. Are you starting with "various meetings and" concepts -- conceptions

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of the use cause were discussed?
Q. Well actually, no.
A. I didn't think so.
Q. Well let me withdraw the question.
A. Oh, I see where you were, on the bottom of the page, "the situation of smoking in relation to health of mankind includes a host"?
Q. Yes. And basically they're saying there that smoking -- the relationship between smoking and tobacco is a complex one; right?
A. Yes, ma'am.
Q. And they go on on the next page to talk about the word "cause" being one -- a word that was in general usage in connection with matters considered in the study, and they note that it's capable of conveying the notion of significant, effectual, relationship between an agent and an associated disorder or disease in the host; right?
MR. McGAAN: Object.
A. Ma'am, I'm sorry, you're asking for --
MR. McGAAN: Let me just state an objection. I lost, too, whether you meant to ask him to confirm --
MS. WIVELL: All right.
MR. McGAAN: -- your reading of a quote or

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if you're asking him to interpret something.

A. If you want me to --

Q. Let me back off and re-ask the question.

(Interruption by the reporter.)

A. Well I'm going to have to sit down and read this more carefully, because you are not asking me to just ask you if you've read the record into this record correctly, but you're not only asking what they said, but also drawing conclusions and asking me if I agree with those conclusions. I'm -- simply --

Q. Fair enough.

A. -- haven't had a chance to read this recently --

Q. Take a moment and read it, please.

A. -- to agree with you.

MR. McGAAN: Why don't you go ahead, doctor, and read the "Criteria for Judgment," it begins on page 19.

A. Can I write on this or make notes on it, or would you prefer not? I mean this is the official record?

Q. That's fine. Go ahead.

A. Only I just wanted to -- in case I want to remember something, go back to that section.

(Discussion off the stenographic record.)

A. Okay.

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Q. All right, sir. You have read the entire portion of the 1964 surgeon general's report entitled -- entitled "Chapter 3, Criteria for Judgment"; right?

A. I believe it's the entire portion, pages 19, 20 and 21.

Q. And you understand after reading these pages that they tell us what criteria the surgeon general's committee used to come to the conclusions that they did in this report; right?

A. Yes.

Q. And one of the things that they tell us is how they came to decide whether something was caused by cigarette smoking; right?

A. Well, not really. It acknowledges the complexity of the problem, it says that no one in the committee used the word cause in an absolute sense, that they recognize that this is in fact a very complex process that may involve many, many factors, but that the word cause really meant just their strength of conviction or affirms their conviction.

So in that sense "cause" seems to mean, to me, that they had come to a strong conclusion. It also talks about earlier in this document, Criteria for Judgment, that clearly these -- these criteria are

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primarily epidemiological, although other things were considered, they were primarily epidemiological in nature. I think anyone who reads this would come to the same conclusion of that. So what it says to me is they're relying primarily on epidemiological evidence, that certainly the strength of that association and consistency and specificity is there, and that in their mind was sufficient to come to a strong conclusion and the word cause affirms the strength of their conviction.

Q. And they say, "The word cause is the one in general usage in connection with matters considered in this study, and is capable of conveying the notion of a significant, effectual, relationship between an agent and an associated disorder or disease in the host"; right?

MR. McGAAN: Where are you reading from?

A. Yeah.

MR. McGAAN: Do you have that sentence?

Q. In other words, they thought that a cause was something which would bring about something else in the host; right?

A. Right. And the very next sentence says, "It should be said at once, however, that no member of this Committee used the word 'cause' in an absolute

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sense in the area of this study."

Q. All right. Keeping in mind that they weren't talking about absolute cause, they go on to say, however, that granted these complexities were recognized, it should be noted clearly that the committee's considered decision to use the words "a cause," or "a major cause," or "a significant cause," or a "causal association" in certain conclusions about smoking and health affirms their conviction; right?

MR. McGAAN: Object. The predicate to the question mischaracterizes the document. Also it's misleading on the record as to whether you're asking the witness if you read correctly from this document. You can answer it if you know.

A. Well you did read correctly from the document. That is what the document says. And my interpretation of that, as I said, they talk about their criteria are primarily epidemiological --

THE VIDEO TECHNICIAN: One moment.

(Discussion off the record.)

(Discussion off the stenographic record.)

BY MS. WIVELL:

Q. Well sir --

MR. McGAAN: Why don't we do this, because

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there was a question pending and the witness was cut off in the middle of his answer, for technical reasons, could we just, Debby, have the question read back as much as you got it and he can finish or explain the rest of the answer.

(Record read by the reporter.)

A. Let me finish the statement from there.

They are primarily epidemiological, the criteria that are laid out here, a), b), c), d) and e) refer almost exclusively to epidemiology evidence, although I do agree that other evidence were considered. They talk about what's meant by cause, which the fact that there was a debate about it is a suggestion that there is no absolute definition of cause. There is nothing written out there so ultimately one has to arrive to a conclusion, and there are many definitions of cause. The surgeon general in 1990 used different criteria which I'm prepared to speak about. But in this context let's continue.

They say that no member used the word cause in an absolute sense, they even go on to say, no member was so naive as to insist upon mono-etiology in the pathology of -- in the pathological process or in vital phenomenon. So here is a debate about what is meant by them when they use the word cause, and

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ultimately to me, the interpretation I make is the bottom line, which is cause, is an affirmation of their conviction, which is how convinced they are, based primarily on epidemiological evidence, that an association exists, and it's a causal association.

Q. Well sir, you would agree, based on what you just said, that the members of the surgeon general's committee believed that there could be more than one direct cause of an injury; right?

A. Well they -- they talk about that possibility. I don't know if that's what they believe, but they -- it says, no member was so naive as to insist upon mono-etiology in the pathological processes or in vital phenomena.

Q. Now sir, you have said several different times that they primarily relied upon epidemiological evidence. Would you point out where they say that here, or is that just something that you're telling the ladies and gentlemen of the jury based on your assessment of what they actually said?

A. I'll have to go back and -- That's why I asked you if I could make notes on this because I did find a couple of indications. I don't want to make notes because I don't want to create a new record so let --

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Q. No, that's fine. Please go ahead.
A. Well, I don't want to do it.
MR. McGAAN: Well, I object late. You need to pause to let me get an objection.
I object to the false dichotomy posed in counsel's question.
A. But let me go through the document, I will point out to you areas that are evidence to me --
Q. That's not my question, sir.
My question is: Where does it say that they relied primarily on epidemiological evidence, or is that just your interpretation of what they say?
MR. McGAAN: Same objections.
A. Let me go through and I'll point out the areas and I'll tell you what it says or if it's my interpretation.
MR. McGAAN: While the witness is doing that, the record should reflect he's not taking time to review the entirety of this 400-page document for this purpose, but instead looking at the two-and-a-half pages beginning at page 19.
A. This sentence on page 19, the very first sentence under "Criteria of the Epidemiological Method." Well first of all the title of the section is "Criteria of the Epidemiological Method," which is

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a strong suggestion that the epidemiological method plays a prominent role in their criteria, so -- since that section is entitled that. But then it says, "It is advisable, however, to discuss briefly certain criteria which, although applicable to all judgements involved in this Report, were especially significant for judgements based upon the epidemiological method."

Q. All right, sir.

A. Talking about the epidemiological method here.

Q. Well keeping in mind that they're talking about the epidemiological method, it doesn't say that they're primarily relying on it here, does it?

A. Well then the next sentence --

MR. McGAAN: Wait a second, let me object. Are you asking the witness to stop his review to find --

Q. Yes. We'll take this one at a time.

A. Right, then the next sentence says.

Q. No, I'd like an answer to my question.

MR. McGAAN: She's got a question pending.

Q. You would agree, sir, that it doesn't say there that they are primarily relying on in that part, does it?

A. In that sentence, no, but my interpretation,

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based on the title of this section and that sentence is that they are, but then the next sentence says, "In this inquiry the epidemiological method was used extensively in the assessment of causal factors in the relationship of smoking and health among human beings upon whom direct experimentation could not be imposed."

So that is even a stronger indication that they're relying pri -- certainly extensively. Now it doesn't say "primarily," I agree with you, so again, you could say this is my interpretation, but it's evident to me anyway.

It says, "When coupled with other data, results from the epidemiological studies can provide the basis upon which judgements of causality may be made." So again they're saying, in my view, this is the primary basis of making these determinations.

Q. But it doesn't say that, does it, sir?

A. No, it doesn't say that but I'm just talking about the whole section and everything that's being said and everything that's being implied collectively says to me that they're relying primarily on epidemiological evidence.

They continue to talk about, in carrying out studies through the use of the epidemiological

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method, and the next sentence down they're talking about whether or not an association exists or not or does the association have causal significance. Again talking about epidemiological evidence they say here now, "statistical methods cannot establish proof of a causal relationship." So they acknowledge that. However, then they go on to say, but if we want to have -- try to make a causal relationship or interpret causal significance of statistical associations we need to apply criteria, which are a) through e) which are applied to epidemiological evidence.

To me this whole section talks about epidemiology and use of epidemiological evidence.

Q. Well it's headed "Criteria of the Epidemiologic Method," isn't it, sir?

A. That's what I -- Yes, that's what I'd indicated.

Q. And it's one section under a chapter heading "Criteria for Judgment"; right?

A. That's correct.

Then the next section talks about causality, which we already talked about, which in my view is -- is sort of def -- explaining the difficulty of the term "causality." It's an acknowledgment that there is no absolute definition out there, and as I said,

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in 1990 the surgeon general had yet a different set of criteria because a different objective was being achieved in that assessment. So that indicates to me there are no absolute written-in-stone criteria. But they're talking about this here, they acknowledge the difficulties and the complexity of the situation, they acknowledge that the use -- the word cause was not used in the absolute sense and they're not so naive as to apply it in a mono-etiological way, but that what causality meant in their mind was -- they used the word to affirm their conviction, which is to affirm that they were sufficiently convinced, primarily based on the epidemiological evidence, that a cause or an association was there, or there was an effectual relationship.

Q. Well sir, you haven't pointed out one place in this report so far where it says "we primarily relied on epidemiology."

A. No, those words exactly as you state them are not there, but if you read the whole discussion, that's the context that seems to be emerging and the conclusion that -- that I draw from reading this.

Q. Well you've read the whole --

A. This certainly doesn't undermine my conclusion, it certainly doesn't -- isn't evidence against my

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conclusion.
Q. You've read the whole report, haven't you, sir?
A. Yes.
Q. Well you've read the part of the report where they talk about the kinds of evidence they rely on that begins on page 26; right?
A. Yes.
Q. It says there "Kinds of Evidence" as a heading, doesn't it, sir?
A. Yes.
Q. And it says, "In order to judge whether smoking and other tobacco uses are injurious to health or related to specific diseases, the Committee evaluated three main kinds of scientific evidence"; right?
A. Yes.
Q. It talks about animal experiments.
A. Umm-hmm.
Q. The next page it talks about clinical and autopsy studies.
A. Yes.
Q. And then it talks about population studies, doesn't it?
A. Yes, and population studies are epidemiological studies.
Q. Well let's go back to the animal studies. It

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says that "In numerous studies, animals have been exposed to tobacco smoke and tars, and to the various chemical compounds they contain. Seven of these compounds (polycyclic aromatic compounds) have been established as cancer-producing" (carcinogenic). Have I read that correctly so far?

A. Actually there's a typographical error in this report, it says "carginogenic" and I think it means "carcinogenic."

Q. All right. But I have read it so far correctly?

A. So far, yes.

Q. All right. And then it goes on to say, "Other substances in tobacco and smoke, though not carcinogenic themselves, promote cancer production or lower the threshold to a known carcinogen"; right?

A. Yes, that's what the document says.

Q. And the committee went on to say, "Several toxic or irritant gases contained in tobacco smoke produce experimentally the kinds of non-cancerous damage seen in the tissue and cells of heavy smokers"; right?

A. Yes, that's what it says.

Q. And it goes on to talk about this including suppression of ciliary action that normally cleanses the trachea and bronchi, damage to the lung air sacs, and to mucus glands and goblet cells which produce

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mucus; right?

A. That's what the document says, yes.

Q. And you know from reviewing the whole document that if we were to look at other portions of this very large document that the discussion of the committee's review of the animal experiments that are discussed briefly here at page 26 are discussed in detail; right?

A. In this report and in many other surgeon general's reports too, that's correct.

Q. All right. And then the committee goes on to talk about, on the next page, the clinical and autopsy studies which they reviewed in order to come to their conclusions which are reflected in the surgeon general's report of 1964; right?

A. Yes. That's what it says.

Q. And it says, "Observations of thousands of patients and autopsy studies of smokers and non-smokers show that many kinds of damage to body function and to organs, cells, and tissue...occur more frequently and severely in smokers"; right"?

A. That's what it says.

Q. Now "clinical studies," those are studies that physicians have actually done on -- looking at people who smoke; right?

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A. That's one way of doing them, yes.
Q. All right. And another way of doing them is to conduct research where someone, if someone has died and an autopsy is done, various body parts, organs are examined to try and determine what the causes of death was; right?
A. Sometimes that's what the autopsy is conducted for, yes.
Q. In fact that's what's referred to here when it talks about autopsy studies that the surgeon general's committee reviewed in order to come to their conclusions.
A. I don't know if it's the type of autopsies that you referred to where an autopsy is conducted to determine cause of death. I'm not sure. I'd have to go back and look in more detail, but that seems reasonable.
Q. All right. Well you would agree that one thing that can be done by a physician is to look at organs of people who have never smoked and compare them with organs of people who have smoked.
A. Certainly. Certainly.
Q. And that's an autopsy study of the kind that the surgeon general's committee looked at in coming to their conclusions in 1964.

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A. Most likely.
Q. You know that from reading the report, don't you, sir?
A. Well it's been awhile since I read the report, but yeah.
Q. All right. And one of the things that's done is that medical doctors and pathologists then look to see the kinds of cellular changes that have taken place in people who smoke; right?
A. That has been done, yes.
Q. And they refer here to three kinds of cellular changes, loss of ciliated cells, that's the first; right?
A. I'm sorry, let me find exactly where you are. Yes.
Q. All right. And ciliated cells, they're the cells within the lungs and the -- the nasal cavities that try and clear away debris, simply stated. Isn't that true?
A. Simply stated, yes. They contain these little hairlike projections that can beat in the direction of up the respiratory tract to remove whatever foreign matter may be there.
Q. And they noted that there had been changes in ciliated cells -- I'm sorry, strike that.

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The committee reviewed studies that showed that there were changes in the ciliated cells of the lungs and bronchial cavities and nasal cavities among smokers; right?

A. Yes.

Q. And so that these cells didn't work in cleaning out the bronchial cavities; right?

MR. McGAAN: Object, mischaracterizes --.

A. I don't know that that's what the conclusion was. They talked about changes that were observed microscopically in physical appearance, but I don't know if I can draw your conclusion, which is that that resulted in a functional change. Maybe they did that, maybe they didn't, but that's not what this document says.

Q. Well the document says three kinds of cellular changes, loss of ciliated cells.

A. Right.

Q. Thickening, more than two layers of basal cells.

A. Right.

Q. And presence of atypical cells are much more common in the lining layer, epithelium, of the trachea and bronchi of cigarette smokers than nonsmokers; right?

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A. That's what it says, yes.
Q. Okay. And just so we're -- we're clear here for the ladies and gentlemen of the jury, "atypical" means not normal; right?
A. It means not typical.
Q. All right. And "typical" is normal.
A. Right.
Q. Okay. So they also noted that cellular changes found at autopsy in patients with chronic bronchitis are more often present in the bronchi. The bronchi are what, sir?
A. Bronchi?
Q. Yeah.
A. They're parts of the respiratory tract.
Q. These cellular changes regularly found at autopsy in patients with chronic bronchitis are more often present in the bronchi of smokers than nonsmokers; right?
A. That's what the document says.
Q. All right. And they also -- "they" meaning the surgeon general's committee -- also reported that pathological changes in the air sacs and other functional tissue of the lung, or the parenchyma, have a remarkably close association with a past history of smoking; right?

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A. That's what it says, yes.
Q. Okay. Now and those are the -- the clinical and autopsy studies which are described in more detail later on in this report, aren't they?
A. Yes.
Q. Now the third thing that the committee looked at was population studies; right?
A. Correct.
Q. It says, "Another kind of evidence regarding an association between smoking and disease comes from epidemiological studies." Right?
A. Correct.
Q. It doesn't say that our primary evidence regarding an association between smoking and disease comes from epidemiological studies, does it?
A. Not here, no.
Q. Okay. Now sir, if it's -- it says -- it talks about retrospective studies in that first paragraph under population studies heading, doesn't it?
A. Yes.
Q. Okay. Now a retrospective study is a study where physicians collect the medical records of a group of patients and then analyze those records looking back over the years; right?
A. Yes.

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Q. That's why it's called retrospective.
A. That's correct.
Q. And it says here, it gives us some information concerning their conclusions about the studies that had been done in smokers with lung cancer; right?
A. Are you asking me if it gives some conclusions?
Q. Yeah.
A. There is a conclusion in the last sentence in that paragraph.
Q. All right. Well, and it notes that for lung cancer alone 29 such retrospective studies had been made in recent years; right?
A. Yes.
Q. Now that means that 29 different studies had looked back at the question of lung cancer; right?
A. Yes.
Q. And it says that despite many variations in design and method, all but one of those studies showed that proportionately more cigarette smokers are found among the lung cancer patients than in the control populations without lung cancer; right?
MR. McGAAN: Object.
A. That's what the document says.
MR. McGAAN: Object, mischaracterizes.
Q. Sir, have you reviewed those 29 retrospective

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studies in preparation for your deposition here today?

A. I've read some of them but I don't think I've read all of them.

Q. Okay. All right.

Now they also go on to talk about other retrospective studies that have been done about the prevalence -- by the way, "prevalence" means what, sir?

A. Occurrence, incidence.

Q. Okay. So would it be fair to say that they go on to say, extensive retrospective studies of the incidence of specific symptoms and signs -- What are signs and symptoms, by the way?

A. Well "prevalence" may have a very specific meaning when you're in the epidemiological nomenclature, and it may actually have a different meaning than "incidence." The distinction I can't explain to you, but to me when I read it it's synonymous with incidence or number of.

Now "signs and symptoms," again that may have a specific distinction in medical circles, I can't explain what that is because I don't know what distinction, if any, those two words have from each other.

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Q. Okay. Well anyway it says "Extensive retrospective studies of the prevalence of specific symptoms and signs, chronic cough, sputum production, breathlessness, chest illness and decreased lung function consistently show that these occur more often in cigarette smokers than in nonsmokers"; right?

A. That's what the document says.

Q. And in fact it goes on to say these signs and symptoms increase with the amount of smoking and decrease when people stop smoke.

A. Now you're --

MR. McGAAN: Object, mischaracterizes this.

A. -- you're making an interpretation and a conclusion. That's not what the document says.

Q. Well it says in general they increase with amount a of smoking and decrease after cessation of smoking; doesn't it?

MR. McGAAN: Object, that's not what it says.

A. It says --

(Interruption by the reporter.)

MR. McGAAN: We have to pause so that she can finish her question, and then if there's an

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objection I can state it, and then that's better for Debby.

Go ahead.

A. That's not what the document says. Would you like me to read what the document says?

Q. Well the document says "Some of these signs and symptoms are the clinical expressions of chronic bronchitis, and some are associated more with emphysema; in general, they increase with the amount of smoking and decrease after cessation of smoking"; right?

A. That's what the document says.

Q. Okay. And sir, have you reviewed all of those retrospective studies that are referred to in this paragraph in preparation for coming here and talking to the ladies and gentlemen of the jury today?

A. I don't believe so.

Q. Okay. Let's talk about the -- the next paragraph in the -- another -- the other type of epidemiological evidence which the surgeon general's committee reviewed in coming to its conclusions.

Those -- That included seven prospective studies; right?

A. Yes.

Q. And those prospective studies --

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By the way, a prospective study means we get together some people and we watch what happens to them as they go forward through the years; right?

A. That's correct.

Q. And the doctors collect the medical records and then analyze what's happening to those people as they get older.

A. And they try to relate the incidence of emergence of certain diseases with certain factors that may be occurring in their lifestyle to see if there's any correlation between a particular lifestyle factor and the incidence of a particular disease.

Q. Okay. Now "prospective" means looking forward; right?

A. Correct.

Q. While "retrospective" means we look back at what's already happened.

A. Right.

Q. Okay. Now it says here, "Another type of epidemiological evidence on the relation of smoking and mortality comes from seven prospective studies which have been conducted since 1951"; right?

A. Yes.

Q. And it says, "In these studies, large numbers of

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men answered questions about their smoking or nonsmoking habits."

A. Yes.

Q. Right?

And then death certificates have been obtained for those who died after they entered the study.

A. Yes.

Q. And so they were able to compute the total death rate and death rates by causes -- Well, strike that.

They were able to figure out the death rate for people who smoked versus the death rate for people who didn't smoke in these seven studies; right?

A. Yes.

Q. And the report notes that "Their data permit direct comparisons of the death rates for smokers and non-smokers, both overall and for individual causes of death, and indicate the strength of the association between smoking and specific diseases"; right?

A. Yes.

Q. Now the committee goes on in the next paragraph to say "The committee was aware that the mere establishment of a statistical association between the use of tobacco and a disease is not enough"; right?

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A. That's what it says.
Q. And so the causal significance of the use of tobacco in relation to the disease is the critical question; right?
MR. McGAAN: Object, mischaracterizes.
A. It says "is the crucial question."
Q. I'm sorry, the crucial question.
And it goes on to note that for the -- their judgements for all three lines of evidence are described in particular chapters of their report.
MR. McGAAN: Object. I think that mischaracterizes what the document says.
A. Yeah. I mean, I think the -- the best thing to do is just read what it says. If you would like, I'll read it.
Q. Go ahead.
A. I think the sentence you're referring to says, "For such judgements all three lines of evidence are essential, as discussed in more detail on pages 26-27 in this Chapter, and then Chapter 3."
Q. All right. Now keeping in mind that the committee thought that an assessment of all three different kinds of evidence, animal experiments, --
A. Umm-hmm.
Q. -- clinical and autopsy studies and

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epidemiological studies was important, they came to some conclusions in the 1964 report concerning whether cigarette smoking caused lung cancer; right?

A. Yes, they did.

MR. McGAAN: Move to strike the predicate statement.

Q. Sir, the surgeon general's committee concluded that cigarette smoking is a health hazard of significant importance in the United States to warrant appropriate remedial action; right?

A. Where are you reading from?

Q. Page 33, under "The Committee's Judgment in Brief."

A. "The Committee's Judgment in Brief." Okay.

Yes.

Q. And sir, the surgeon general's committee concluded that cigarette smoking is causally related to lung cancer in men; right?

MR. McGAAN: What page are you on?

A. Yeah, what page are you on?

Q. Page 37.

A. Yes.

Q. And the surgeon general's committee in 1964 concluded that cigarette smoking is the most important of the causes of chronic bronchitis in the

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United States; right?

A. And what page are you on?

Q. Page 38.

A. That's what the document says, correct.

Q. It says -- I'm sorry. Strike that.

The surgeon general's committee concluded that "Cigarette smoking is the most important of the causes of chronic bronchitis in the United States, and increased the risk of dying from chronic bronchitis"; right?

A. That's what it says.

Q. And sir, Brown & Williamson disagrees with the conclusions that were drawn in this report, doesn't it?

A. I don't believe that's my testimony.

Q. Well sir, does Brown & Williamson agree that cigarette smoking causes lung cancer?

A. As I said before, whether or not one -- where one comes out on this question depends upon what your objectives are in making your assessment and what your assessment criteria are. I did not say we don't think cigarette smoking causes lung cancer, I said we think that it very well may. If your assessment criteria are primarily epidemiological in nature, and if you're making an assessment for the purpose of

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determining whether or not the public ought to be warned, then the epidemiological evidence suggests that it does causes cancer.

On the other hand, if you're in the position of trying to respond to the issue of trying to determine what modifications one has to make in their product to make a product that the scientific community would regard as safe or nonhazardous, the assessment criteria that one needs to apply are more rigorous and your assessment conclusion may come out different, and in fact it does.

I can go through that again if you wish, I already have once before. Would you like me to go through my explanation again?

Q. No, that's fine.

A. Okay.

Q. Sir, showing you what's previously been marked in this litigation as Exhibit 1148, that's entitled "A Frank Statement to Cigarette Smokers."

(Discussion off the stenographic record.)

A. I assume we're done with this?

Q. For the time being.

A. Yes, ma'am.

Q. Have you ever read this document, sir?

A. Yes, ma'am.

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Q. You're familiar with it.
A. Yes, ma'am.
Q. You understand that it was published in over 400 newspapers throughout the United States?
A. That I don't know. I don't know how many newspapers it was published in.
Q. Well you know that Brown & Williamson, your employer, sponsored this Frank Statement to cigarette smokers.
A. Actually I didn't know that either.
Q. Well it says so right at the bottom of the page, doesn't it?
A. That we sponsored it? Oh, "SPONSORS." Well, we're among people that sponsored it.
Q. And --
A. We're among organizations that did.
Q. And among the other smokers -- I'm sorry. Strike that.

Among the other sponsors were the other cigarette manufacturers here in the United States; right?

A. Well it doesn't look like exclusively cigarette manufacturers, but there are other cigarette manufacturers among the sponsors listed here, yes.
Q. And this Frank Statement starts out by claiming

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that "Recent reports on experiments with mice have given wide publicity to a theory that cigarette smoking is in some way linked with lung cancer in human beings"; right?

A. That's what the document says.

Q. And it goes on to say, under point 3, "there is no proof that cigarette smoking is one of the causes"; right?

A. I'm sorry, where are you?

Q. Point 3.

A. "At the same time," you mean, "we feel"? Oh, point 3.

Q. I'm sorry, point 3 in the left-hand column.

A. It says, "Distinguished authorities point out:," then point 3 is "That there is no proof that cigarette smoking is one of the causes." Okay. I see that.

Q. All right. And where it says, "Distinguished authorities point out...that there is no proof that cigarette smoking is one of the causes," that particular phrase refers to whether cigarette smoking causes lung cancer; right?

A. Let me -- I'd have to go back and see if that's what it's specifically referring to.

(Discussion off the stenographic record.)

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A. It seems to be because the very first paragraph talks about lung cancer, so it seems that it's in the context of discussing lung cancer.

Q. All right. Well --

A. And the first point is about lung cancer as well.

Q. Okay. You have, since you joined Brown & Williamson, done an extensive review of Brown & Williamson documents; right?

A. Yes, I have.

Q. And in the time that you conducted this extensive review you ever seen an ad that Brown & Williamson has taken out in any newspaper, even one single newspaper, that says that cigarette smoking very well may cause cancer?

MR. McGAAN: Object, lacks foundation as phrased.

A. I think before putting out an ad like that we would want to assess the need to do that.

Q. Well sir, this particular Frank Statement says "We accept an interest in people's health as a basic responsibility, paramount to every other consideration in our business." Is -- Does Brown & Williamson accept an interest in people's health today as its basic responsibility paramount to every

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other consideration in its business?

A. I'm not sure what -- what that statement even means, to be perfectly honest. I can tell you I think we have basic responsibilities, and I can tell you what I think they are. I don't know -- I don't know what this statement means.

Q. Well why don't you take a moment and read it over and see if you can figure out what you think Brown & Williamson meant when it said, "We accept an interest in people's health as a basic responsibility, paramount to every other consideration in our business."

MR. McGAAN: Asked and answered.

A. As many times as I read that statement I'm not going to know what they meant, but what I think they meant is that we are certainly interested in people's health, I can tell you that we feel that people ought to be aware of whatever risks are associated with smoking and that in a free society where -- where society has said people can have access to tobacco products, so it's acceptable for adults to have access to tobacco products, they ought to be aware of the potential risks.

Q. All right. Well keeping that in mind, what you just said there, Brown & Williamson went on in 1954

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to say "we believe the products we make are not injurious to health"; right?

A. Which point is that?

Q. Right after the paragraph "We accept an interest in people's health as a basic responsibility, paramount to every other consideration in our business."

A. Yes, that's -- Right, that's what it says.

Q. Sir, you're going to have to let me finish.

A. I'm sorry.

Q. And it goes on to say "We believe the products we make are not injurious to health"; right?

A. That's correct.

Q. Well keeping in mind that in 1954 Brown & Williamson helped sponsor an ad that appeared all over the country, wouldn't it be important if Brown & Williamson concluded that cigarette smoking very well may cause cancer or disease, that it had an obligation to take out ads in newspapers all over the country and tell smokers that?

MR. McGAAN: Object, compound, mischaracterizes prior testimony, is misleading with regard to time frame.

You can answer if you can.

A. Okay. As I said before, to take out an ad like

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that the first thing -- I mean, any action that we would do we would say what's the need to do that? We would assess is there a need to do that. This was in 1954 before convergence of a lot of research had occurred, we're now talking about 1997, 40-some odd years later.

I believe that the public has been adequately warned by the public-health authorities, there's warnings on the pack, there are 20-plus surgeon general's reports, there are many public-health statements that the public has certainly had an opportunity to be aware of. I don't know if it would really matter if Brown & Williamson took out a statement and said whatever the statement is that you just read back. I don't know if it would really change the public's opinion. It may, it may not, but certainly the public has had adequate warning of the possible health effects of smoking --

Q. Well I'm just --

A. -- for the past 40 years.

Q. I'm sorry.

Well sir, what I'm trying to determine is you told us a little bit earlier that the public ought to be aware of whatever risks are associated --

A. Right.

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Q. -- with smoking and health; right?
A. Correct.
Q. All right. Well don't they have a right to know that Brown & Williamson feels that it very well may be that cigarette smoking causes disease, like you've said just a little bit ago?
A. I think the public has a right to be made aware of the potential health hazards of cigarette smoking. I don't know if it really matters where that information comes from. That information is out there, it has been for 40-plus years, the public is universally aware of it.
Q. Well sir, it says here in the Frank Statement, "We believe the products we make are not injurious to health." Did Brown & Williamson ever retract that statement?
A. I don't know if they retracted it or not.
Q. Well based on your extensive review of Brown & Williamson documents, you'd agree that you have not seen any statement that was made publicly by Brown & Williamson retracting the claim, quote, we believe the products we make are not injurious to health; right?
MR. McGAAN: Object, lacks foundation with regard to the extensive review. There's no evidence

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of that.
A. I don't know if there's been a retraction or not.
Q. Well you haven't seen one in your extensive review of documents, have you?
MR. McGAAN: Same objection with regard to which documents this witness reviewed.
A. I have made statements in depositions to that effect. Whether they're public, I don't know. It -- I don't know what the legal status of these things is.
Q. Well sir --
A. And I don't know what other statements others may have made that acknowledged that cigarette smoking may be a cause of disease.
Q. Well you haven't seen any ads that were taken out, or press releases issued by Brown & Williamson which retract the statement we believe that the products we make are not injurious to health?
A. No, I don't believe I've ever seen an ad that retracts the statement that was made in this document.
Q. And sir, during your extensive review of Brown & Williamson documents you have not seen any statement that -- that was issued by Brown & Williamson to the

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Source: http://www.industrydocuments.ucsf.edu/docs/psxd0001

public that said cigarette smoking may very well cause disease.

MR. McGAAN: Same objection with regard to the review. There's no testimony to that.

A. I don't know if it said those exact words or not. I know that we acknowledge the epidemiological evidence, we also acknowledge the gaps that exist in other critical areas of assessment of this issue, we acknowledge that smoking is a risk factor and it may be a cause of disease, but when one applies risk criteria we still have questions that are unanswered.

Q. Well sir, this Frank Statement to cigarette smokers that was published in 1954 ends with the statement, quote, this statement is being issued because we believe the people are entitled to know where we stand on this matter and what we intend to do about it. Isn't that true, sir?

A. I'm sorry. Where are you reading from?

Q. Let me rephrase -- I'm reading from the last paragraph, sir.

Doesn't this Frank Statement to the cigarette smokers that was published in 1954 end with the statement, quote, this statement is being issued because we believe the people are entitled to know where we stand on this matter and what we intend to

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do about it; right?

A. That's what the statement says.

Q. All right. And again I'm asking you can you direct us to a single ad or press release or publication that Brown & Williamson has put out so that the public could understand that it believes that cigarette smoking may very well cause disease?

MR. McGAAN: Asked and answered.

A. I've answered the question.

Q. The answer is no, isn't it, sir?

A. Yes. I mean yes, I don't -- I cannot identify an ad that takes out a press statement that uses those very words, no.

MS. WIVELL: Why don't we take a break.

THE REPORTER: Off the record, please.

(Recess taken from 10:39 to 10:50 a.m.)

BY MS. WIVELL:

Q. Sir, going back to Brown & Williamson's responses to Plaintiffs' Request for Admissions, Exhibit 326, --

A. Umm-hmm.

Q. -- would you turn to the second page.

A. Yes.

Q. There the plaintiffs ask Brown & Williamson to admit that smoking causes heart disease; right?

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A. That's correct.
Q. And essentially Brown & Williamson denied that it had been scientifically established that cigarette smoking causes heart disease --
MR. McGAAN: Object, mischaracterizes. I'm sorry.
Q. -- and --
A. Shall I just read Brown & Williamson's answer into the record?
Q. Well, sir, essentially isn't that what the answer says?
MR. McGAAN: Object, mischaracterizes.
A. Well it says a number of things, including providing a basis for why it denies request number 2.
Q. All right. Why don't you read the response.
A. "Smoking is widely reported as a risk factor for certain types of heart disease. Numerous other factors are also reported to be risk factors for heart disease, including but not limited to genetic, environmental, social and behavioral factors. The causes of heart disease are complex and have not been scientifically established. Brown & Williamson therefore denies that it has been scientifically established that cigarette smoking causes heart disease and denies Request No. 2. Request No. 2 as

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phrased is vague and ambiguous."

Q. Now sir, you understand that in the intervening years after the surgeon general's report of 1964 there have been yearly annual reports put together by similar committees that have been issued by the surgeon general of the United States.

A. I'm aware that there were many reports. I don't know if they were always yearly or annual but --

Q. And you're aware, aren't you, that in the years after 1964 the scientists who issued the reports or put together the reports issued by the surgeon general have concluded that cigarette smoking causes heart disease.

A. Yes.

Q. Now sir, the next thing that the plaintiffs ask Brown & Williamson to admit was that smoking causes arteriosclerosis; right?

A. Correct.

Q. What do you understand arteriosclerosis to be?

A. A narrowing of the arteries.

Q. All right. With that definition in mind, Brown & Williamson essentially denied that cigarette smoking caused arteriosclerosis; right?

MR. McGAAN: Object, mischaracterizes the answer.

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A. Well, shall I read the statement into the record, because it says a lot of things here, and provides a basis for the denial.

Q. All right. But there is a denial; right?

A. It says -- It says it denies it. I don't know if this is a scientific denial or a legal denial or what the significance of the denial means in this particular case --

Q. All right. Why don't you read the answer --

A. -- in this document.

Q. -- into the record.

A. "Smoking is widely reported as a risk factor for certain types of arteriosclerosis. Numerous other factors are also reported to be risk factors for arteriosclerosis, including but not limited to genetic, environmental, social and behavioral factors. The causes of arteriosclerosis are complex and have not been scientifically established. Brown & Williamson, therefore, denies that it has been scientifically established that cigarette smoking causes arteriosclerosis and denies Request No. 3. Request No. 3 as phrased is vague and ambiguous."

Q. Now sir, you're aware that in the reports that came out after 1964 that were issued by the surgeon general of the United States, many of which you rely

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on in your expert report, that it was concluded by those members of the committee that cigarette smoking does cause arteriosclerosis; right?

A. Yes.

Q. Now sir, the next thing that the plaintiffs asked Brown & Williamson to admit in this case was that cigarette smoking causes strokes; right?

A. Correct.

Q. All right. And basically a stroke is an event where blood is cut off to the brain; right?

A. Yes.

Q. Now Brown & Williamson essentially denied that cigarette smoking causes strokes; right?

MR. McGAAN: Objection, mischaracterizes.

A. Well Brown & Williamson raises the basis of its objection, including that the phrase is vague and ambiguous.

Q. But it does go on to say, in part, "The causes of strokes are complex and have not been scientifically established. Brown & Williamson, therefore, denies that it has been scientifically established that cigarette smoking causes strokes and denies Request No. 4"; right?

A. That's what the document says.

Q. All right. And sir, you would agree that in the

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years since the surgeon general's report of 1964 came out, that subsequent reports, many of which you rely on in your expert -- to give your expert opinions, have concluded that cigarette smoking causes strokes; right?

A. I'm aware of that, yes.

Q. Now sir, the next thing that the plaintiffs asked was the plaintiffs asked Brown & Williamson to admit that cigarette smoking causes emphysema; right?

A. Yes.

Q. Now keeping in mind that you're not a doctor, what do you understand emphysema to be?

A. Emphysema to me, in the lungs there's -- emphysema can occur in many tissues but is basically destruction, degeneration of the structure of alveoli of the lung with the accumulation of air pockets in the tissue.

Q. What's the alveoli of the lung, sir?

A. Alveoli are the functional unit of the lung, they're little air sacs and it's the functional unit where exchange occurs between air of the outside environment and various gases in the body.

Q. And when the plaintiffs asked Brown & Williamson to admit that smoking caused emphysema, Brown & Williamson said essentially that they denied it;

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right?

MR. McGAAN: Object, mischaracterizes.

A. It says a number of things. It essentially denies it primarily because the question is vague and ambiguous. It -- I'll read the answer into the record. It says, "Smoking is widely reported as a risk factor for certain types of emphysema. Numerous other factors are also reported to be risk factors for emphysema, including but not limited to genetic, environmental, social, and behavioral factors. The causes of emphysema are complex and have not been scientifically established. Brown & Williamson, therefore, denies that it has been scientifically established that cigarette smoking causes emphysema and denies Request No. 5. Request No. 5 as phrased is vague and ambiguous."

Q. Now sir, you understand that in the years following the 1965 -- or the 1964 surgeon general's report that other reports have been issued, many of which you rely on for your expert opinions, which came to the conclusion that cigarette smoking does cause emphysema; right?

A. Does cause emphysema, as well as the other diseases in this report in the context of my understanding of the word "cause" and the criteria

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used and the objectives of the surgeon general's committee, yes.

Q. Now sir, the next thing that the plaintiffs requested Brown & Williamson to admit was that cigarette smoking causes chronic obstructive pulmonary disease; right?

A. That's correct.

Q. Now again keeping in mind that you're not a physician, what do you understand chronic obstructive pulmonary disease to be?

A. Basically resistance to airflow of the lungs and the respiratory passages.

Q. Sometimes that's referred to as COPD; right?

A. Sometimes, yes. One of the issues with COPD is that there are many disorders that are collectively put under this umbrella which may or may not all be the same thing, they may be, there's a lot of confusion in the nomenclature in this particular area.

Q. And in fact sometimes chronic obstructive pulmonary disease is also referred to as COLD or chronic obstructive lung disease; right?

A. It may be by some investigators, yes.

Q. And you've seen that in documents that you've reviewed on behalf of Brown & Williamson; right?

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A. I don't specifically recall that, but it may have been. I'm not denying it.

Q. Well sir, you understand that in the years since 1964 that the surgeon general's reports that have come out have come to the conclusion that cigarette smoking causes COPD; right?

A. Yes, I'm aware of that.

Q. Now when Brown & Williamson was asked to admit that smoking caused chronic obstructive pulmonary disease it essentially denied it; right?

MR. McGAAN: Object, mischaracterizes.

A. It says it denies it, it gives a basis of a denial and if I read the -- it says other things about it, and let me read it into the record.

"Smoking is widely reported as a risk factor for chronic obstructive pulmonary disease... Numerous other factors are also reported to be risk factors for COPD, including but not limited to genetic, environmental, social, and behavioral factors. The causes of COPD are complex and have not been scientifically established. Brown & Williamson, therefore, denies that it has been scientifically established that cigarette smoking causes COPD and denies Request No. 6. Request No. 6 as phrased is vague and ambiguous."

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Q. Now sir, I note that each one of these answers starts with the statement "smoking is widely reported as a risk factor"; right?

A. Yes.

MR. McGAAN: No, I'm sorry, it doesn't -- each one doesn't say that, counsel.

A. Well that's a good point. Many of them do, but not all of them.

Q. All right. Let me rephrase it.

The one -- The --

Of the six requests for admission that we have discussed here, each of those six refers to the fact that smoking is a, quote, risk factor for the particular disease; right?

A. Yes.

Q. In other words, when the plaintiffs asked Brown & Williamson to admit that smoking causes cancer, Brown & Williamson did say smoking is widely reported as a risk factor for certain types of disease; right?

A. Well in the case of cancer, yes.

Q. All right. And then when the plaintiffs asked about heart disease and arteriosclerosis and strokes and emphysema and COPD, each of the answers begins with the statement smoking is widely reported as a "risk factor" for that particular disease; right?

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A. Yes.
Q. All right. Now do you agree, sir, that smoking is a risk factor for cancer?
A. Yes.
Q. Okay. And do you --
A. Certain types of cancer. Not all types.
Q. Okay. Well, sir, do you agree that smoking is a risk factor for heart disease?
A. Yes.
Q. Is smoking a risk factor for types of arteriosclerosis?
A. Yes.
Q. Is smoking a risk factor for certain types of strokes?
A. Yes.
Q. Now is smoking a risk factor for emphysema?
A. Yes.
Q. Is smoking a risk factor for chronic obstructive pulmonary disease?
A. Yes.
Q. What do you mean by "risk factor," sir?
A. It means a statistical association has been identified, reported in population studies; namely, epidemiological studies.
Q. Well, you know, I'm not sure that the ladies and

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gentlemen or I understand what you mean. Can you be a little more specific?

A. Okay. Let me start with an example.

And heart disease is a good example to use to illustrate this. There -- We talked about prospective studies and retrospective studies, and there have been many studies like that to try to determine what might be associated with heart disease. And through those studies many, many things have been associated with heart disease, and the way these studies are conducted is you might take a group of people who have heart disease which is a test population, a group of people who don't have heart disease as your control population, if it's a retrospective study you ask them questions about their lifestyle, about their occupation, about their diet, about their other habits that they have and so forth, maybe about their family history, and then you see if you can correlate any of those things with the incidence of disease between the two. And the hope is is that if you find an association, and the association is statistically significant, and if it's a strong association then it'll lead to hypothesis about what might in fact be causing this -- this particular condition.

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In the case of heart disease many, many things have been linked to or associated with the incidence of heart disease through studies in the way I just described. And these include things like dietary cholesterol, dietary fat, high blood pressure which is in itself associated with salt in your diet, cigarette smoking, what kind of personality you have, what kind of occupation you have, dozens and dozens and dozens of things have been associated or linked to heart disease through population studies and through statistical studies. That's what I mean by risk factors. Those things are said to be risk factors. It's not known if they cause heart disease, but they're certainly associated with it through these types of studies.

Q. Well is it fair to say, sir, that when you say something is a risk factor for heart disease -- Strike that.

Is it fair to say that when you say smoking is a risk factor for heart disease, you're in part saying that cigarette smokers have a higher incidence of heart disease?

A. Well, yes, in essence. That's how that risk factor is identified is by looking at the incidence of disease in smoking populations compared to

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nonsmoking populations.

Q. And that's -- I'm sorry.

Using those techniques one can determine whether there is an increased risk for heart disease among smokers; right?

A. Well you can certainly determine that there is an association. You can say that, for example, if a person is a smoker, in general smokers tend to have a higher incidence of heart disease than nonsmokers, or if they have a type A personality they have a higher incidence, or if they eat a lot of animal products in their diet they have a higher incidence of disease. That's what you can say, yes.

Q. Okay. And sir, you're aware that the 1964 surgeon general's report looked at the issue of whether smokers had higher incidences of certain diseases; right?

A. Yes.

Q. And in fact if you turn back to page 4401 there's a table --

A. I need to get my copy of the surgeon general's report.

Q. Okay.

A. 4401?

MR. McGAAN: That's the exhibit number.

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A. Oh, I was thinking I didn't think it was that long.

MR. McGAAN: What page?

Q. Could you turn to page 28.

A. Yes, ma'am.

Q. There is a heading entitled "Evidence From the Combined Results of Prospective Studies"; right?

A. Yes.

Q. And the subject that's discussed here is the evidence that was gleaned from seven studies where smokers and nonsmokers were followed prospectively, or looking forward over the years and then there were some analysis made of different rates of diseases or risks of different diseases between smokers and nonsmokers; right?

A. Well I didn't follow where -- Were you reading just then or were you just paraphrasing what you think they said or what?

Q. Well do you understand that that's what they were talking about here, sir?

A. Well I didn't read this passage so I don't know but --

Q. All right. Well why don't you take a moment and read the section that's on pages 28, 29 and 30.

A. Okay. Starting with "Evidence from the Combined

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Results"?

Q. Yes, sir.

A. How far do you want me to go?

Q. Through that section, please.

A. Which section?

(Discussion off the stenographic record.)

A. I've already gone through "Associations and Causality," now moving into "The Effects of Smoking: Principal Findings."

Q. All right. Just a moment. You've read the part entitled "Excess Mortality" and "Associations and Causality"?

A. Yes.

Q. Okay. Why don't we go on, then.

Sir, the surgeon general's report of 1964 gives us some information about the risk associated with various diseases in smokers versus nonsmokers; right?

A. They talk about expected and observed -- observed deaths, they talk about associations. I don't remember them talking about risk.

Q. All right. Well sir, they said that for coronary artery disease, the leading cause of death in the United States, the death rate was 70 percent higher for cigarette smokers than nonsmokers; right?

A. That's right.

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Q. And they talked about the fact that for chronic bronchitis and emphysema the death rate for cigarette smokers was 500 times higher than for nonsmokers; right?

A. And where are you now, what page?

Q. Under the table.

A. Oh, you're reading from the table?

Q. No, sir.

A. Or you're reading the section of text under the table?

Q. Under the table.

A. Right.

Q. They go on and say for chronic bronchitis and emphysema, the death rate for cigarette smokers is 500 percent higher than for nonsmokers; right?

A. That's right.

Q. And sir, it goes on to note that for lung cancer the death rate was nearly 1,000 ti -- percent higher than for nonsmokers.

A. Yes, that's what it says.

Q. Now under the next heading they talk about the relationship between the number of cigarettes smoked and the death rate; right?

A. I believe so, but just draw my attention to a passage and I'll give you an opinion.

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Q. Well doesn't it say -- doesn't it say, under "Other Findings of the Prospective Studies," "In general, the greater the number of cigarettes smoked daily, the higher the death rate"?

A. Okay. I didn't know you said "cigarettes smoked." I thought you said "smoke," without an E-D on the end.

Q. Just so we're clear here, they give -- the surgeon general's report from 1964 talks about the number of cigarettes smoked daily in relationship to the death rate; right?

A. That's correct.

Q. And for men who smoked fewer than cigarettes a day, the seven studies showed that the death rate from all causes was about 40 percent higher than for nonsmokers.

A. Right.

Q. And the information they gave about men who smoked 10 or -- to 19 cigarettes a day was that the death rate was 70 percent higher than that for nonsmokers; right?

A. Correct. Let me make a point here that the death rate, I think they mean the time of dying or premature death rate. Obviously the death rate's identical between smokers and nonsmokers, everyone

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dies, but I think they're referring to premature death or earlier death.

Q. All right. Keeping that in mind, the information that's given for those who smoked 20 to 39 cigarettes a day was that they had a 90 percent higher death rate than nonsmokers.

A. Yes.

Q. And those folks who smoked more than 40 cigarettes a day had a 120 percent higher death rate than nonsmokers.

A. Yes.

Q. All right. Now there's also a section entitled "Excess Mortality"; right?

A. Yes.

Q. The excess mortality -- mortality refers to death rate; right?

A. "Mortality" refers to death. I don't know if mortality includes the word rate in it or includes the concept of rate.

Q. Well according to this report, "in all seven studies coronary artery disease was the chief contributor to the excess" rate "of deaths of cigarette smokers over non-smokers..."; right?

MR. McGAAN: You just misread that.

A. Yeah, it says "contributor to the excess number

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of deaths of cigarette smokers over nonsmokers."
Q. And lung cancer was the second place cause of disease, or of death.
MR. McGAAN: Object, mischaracterizes.
A. Well it says, "with lung cancer uniformly in second place."
Q. All right. And for --
And it goes on to say, For all seven studies combined, coronary artery disease (with a mortality ratio of 1 to 7) accounts for 45 percent of the excess deaths among cigarette smokers, whereas lung cancer (with a ratio of 10.8) accounts for 16 percent; right?
A. Well it doesn't say that. You said with a mortality ratio of 1 to 7 and it's 1.7.
Q. Point 7, thank you. But apart from that I've read it correctly; right?
A. Yes.
Q. And the surgeon general's committee concluded that the risk for smokers of -- was -- I'm sorry. Strike that.
The surgeon general's committee concluded that since these deaths as a group are responsible for more than 85 percent of the higher death rate among cigarette smokers, they are of particular interest to

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public-health authorities and the medical profession; right?

A. Well you said "since these deaths," and I think the document says "since these diseases as a group --

Q. I'm sorry.

A. -- are responsible."

Q. Let me rephrase it.

And the authors conclude, since these diseases as a group are more -- are responsible for more than 85 percent of the higher death rate among cigarette smokers, they are of particular interest to public-health authorities and the medical profession; right?

A. That's what the document says.

Q. Now sir, you're aware that after 1964 other surgeon general's reports looked at the issue of whether cigarette smokers were at an increased risk of death. Isn't that true?

A. Well I don't know if they used the term "risk." You had indicated they used that here and in fact it doesn't appear that they do, but I know they've looked at the general issue of smoking and health, yes.

Q. All right. And sir, in the 19 --

You have relied for your opinions on the 1989

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surgeon general's report; right?

A. Partially, yes.

Q. All right. And it's among those documents which are listed on your reliance list.

A. Yes.

Q. And in fact, sir, doesn't that report contain a chart which shows the risk of dying from smoking versus the risk of dying from other nonsmoking-related events?

A. It may. I'd have to see the chart.

Q. All right. Well let me ask you this. Which is more risky, which are you more likely to die of, smoking or being stricken by lightning?

A. I don't -- I don't know which you're likely -- more likely to die of.

Q. Well sir, isn't it true that you're more likely to die of smoking, a smoking-related disease than you are to die of being -- to die as a result of being stricken by lightning?

A. Okay. When you --

MR. McGAAN: Object, asked and answered.

A. When you say "more likely," what do you mean, do you mean from a probability point of view based on statistics such as in epidemiological studies, or medical -- medical confirmation of the causes of

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death?
Q. No, the former not the latter, sir.
A. What do you mean by "the former," is what, the first?
Q. The epidemiological likelihood.
MR. McGAAN: Same objection. The question was asked and answered, but it's also incomprehensible.
Q. Well sir, let me rephrase it this way.
Statistically it is more likely that a person will die of a smoking-related disease than it is that they will be struck by lightning; right?
MR. McGAAN: Same objection. Vague as to "person," which person?
Q. Sir, let me rephrase it again.
Statistically it is more likely that a smoker will die of a smoking-related disease than that he will or she will die of being hit by lightning; right?
A. I don't know how to answer that question. Let me -- Perhaps if I could try to respond to it in -- in terms that I can understand.
A lot more people smoke than get struck by lightning, and those people get diseases which have been statistically associated with cigarette smoking,

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as do nonsmokers get diseases which have been statistically associated. If you take the sheer numbers of smokers, because there's so many more, than get struck by lightning, you're going to have a larger number of people who ultimately succumb to diseases as they age, some of which have been linked in epidemiological studies to smoking. But I don't know -- I don't have any basis to make a -- a probabilistic statement about the probability of being struck by lightning or the probability of getting a smoking-associated disease.

Now if you give me something tangible like if a person is struck by lightning, what's the likelihood they will be harmed compared to if a person smokes a cigarette, what's the likelihood they will be harmed I may have a better grounds to give you an opinion, but even there I'd still be -- I would still have difficulty.

Q. Well sir, isn't it true that in the 1989 surgeon general's report that you rely on in part for your opinions in this case, the folks who put together that report did a table which estimated risks of various activities?

A. They probably did.

(Plaintiffs' Exhibit 4402 marked for

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identification.)

BY MS. WIVELL:

Q. Sir, showing you what's been marked as Plaintiffs' Exhibit 4402, this is a copy of the report of the surgeon general, the U.S. Department of Health and Human Services, dated 1989; right?

A. Yes.

Q. It's entitled, "Reducing the Health Consequences of Smoking, 25 YEARS OF PROGRESS."

A. Yes.

Q. You've read this document?

A. Most of it.

Q. You rely on it as part of the opinions you're giving in this case.

A. In part.

Q. You consider it authoritative, don't you, sir?

A. I agree with -- Well I don't know what you mean by "authoritative." I agree with parts of it, and some parts I don't agree with.

Q. Well but you did consider it sufficiently authoritative to put it on your list of materials that you rely upon for your expert report which are part of Exhibit 4400; right?

MR. McGAAN: Object, mischaracterizes the testimony.

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A. It is included amongst documents that I relied on.
Q. All right.
A. It is on the list.
Q. Now sir, would you turn to page 160. There is a table entitled "Estimated risks of various activities"; right?
A. Yes.
Q. You've read this report before -- or, I'm sorry, you've seen this table before, haven't you, sir?
A. I've seen this table and many like it.
Q. All right. And this table lists, on the left, various activities or causes; right?
A. Yes. Well "activity or cause," yes.
Q. That's what it says; right?
A. Yes.
Q. And then on the right it gives the annual fatalities per one million exposed persons; right?
A. Yes.
Q. Now just so we're clear here, that column on the right gives the number of people that would die of the particular cause or activity per one million people in the population; right?
A. I don't think it's -- what it -- how many people would die, but my understanding is that this is a

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compilation of fatalities that have been linked to various activities. I don't know if it says if you play basketball, for example, you have a 0.02 in one million chance of dying because of basketball, but I think what it says is of people who have been -- where basketball is the cause of death, if you look at the whole population, how many people die as a result of basketball and then go through that computation, this is the number that you'll get.

Q. All right. Fair --

A. I don't know if it means that that -- if I play basketball that's what my risk of dying because of basketball is.

Q. All right. Now just so we're clear here though, you would agree that the most dangerous or most risky activity on this list is active smoking; right?

A. Well I wouldn't -- I wouldn't characterize it as you did. What I would agree with is at the top of the table, under "Annual fatalities per 1 million exposed persons," "active smoking" is on the top of the list. That number -- All of these numbers are derived from statistical procedures. In some cases you have a direct cause and effect like in a motor vehicle accident you've got a car crash and a person who's dead inside the car. In other cases you have

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certain things like air pollutants where you really don't know if those things caused death or not, they're based on statistical studies such as epidemiological studies. That's where these numbers come from.

I think it's important that people understand that these aren't actual body counts in many cases, in some cases they are, in the case of an automobile accident, and I assume in case of playing basketball, but in other cases they're derived from statistically associated -- statistical associations from epidemiological studies.

Q. Well sir, are the statistics given there concerning active smoking that there would be expected 7,000 fatalities per 1 million exposed persons per year, are those actual body counts?

A. No.

Q. So your testimony is that that's taken from epidemiological studies.

A. I believe -- Well I haven't gone into a deep dive into how these numbers were obtained, but there's only one way they could be obtained and that's to base it on epidemiological evidence and epidemiological studies to look at the relative risks that have been reported in those studies and apply

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them to a broad population and come up with an attributable risk calculation.

Q. All right. But just so we're clear here, the figure that's given for active smoking is 7,000 annual fatalities per 1 million exposed persons; right?

A. That's what the table says, yes.

Q. And the next closest figure that's given in this table of estimated risks of various activities is for alcohol; right?

A. Yes.

Q. And those alcohol-related diseases due to accident are 275 fatalities annually per 1 million exposed persons; right?

A. Well, I'm not sure. It's hard to tell these numbers the way they're lined up. It looks to me like -- yeah, accidents, 275. Total is 541.

(Interruption by the reporter.)

A. Total is 541, accident is 275. Yes.

Q. All right. And one of the reasons why there is a total that is higher than those deaths that are annually attributed to alcohol per 1 million exposed persons is because there's also a category of disease related to alcohol; right?

A. Yes, there is.

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Q. And the figure for that is 266 annual fatalities per 1 million exposed persons.

A. That's what the table says.

Q. By the way, did Brown & Williamson ever take out any ad and tell people that, smokers, you have an increased risk of dying as a result of your smoking habit?

MR. McGAAN: Lacks foundation.

A. I think before taking out an ad like that we would make an assessment of whether or not that would be beneficial in any way, and if the purpose is to provide warning to the public about possible risks I think we would conclude that that's been done, that the public is aware of the possible risks and there'd be no benefit from a public-health-warning point of view of taking out such an ad.

Q. Well sir, if Brown & Williamson had taken as its responsibility, as it said in the Frank Statement as its primary responsibility, I think it says, the health of its smokers, doesn't Brown & Williamson also have a responsibility to let people know where it stands?

MR. McGAAN: Object, compound and mischaracterizes the Frank Statement.

(Discussion off the stenographic record.)

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A. I don't believe the Frank Statement says we have a responsibility to let people know where we stand.
Q. Well it says "We accept an interest in people's health as a basic responsibility, paramount to every other consideration in our business." And then it goes on to say, "This statement is being issued because we believe the people are entitled to know where we stand on this matter and what we intend to do about it"; right?
A. That's what it says.
Q. All right. Sir, going back to that and keeping in mind that I'm not asking you about what the public-health authorities have told smokers, I want to know if you think it is important that Brown & Williamson -- Strike that.

Going back to that and keeping in mind that I'm not asking you what the public-health authorities have told smokers, isn't it true that Brown & Williamson has never taken out an ad or made a public statement telling smokers that it believes that smokers have an increased risk of dying?

MR. McGAAN: Object, move to strike the predicate to the question as improper, lacks foundation.

You can answer.

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A. I'm not aware of all the statements that Brown & Williamson has made. I'm not involved in corporate communications or in marketing or whoever deals with taking out statements in the -- taking out ads in the paper and making statements. It's possible we have done that in fact. I just don't know. I'm not denying it or affirming it.

My opinion is that I think the public ought to know what the risks are of smoking in a free society where tobacco is allowed and accessible, and I believe that that has been done. I don't believe there would be any added benefit for Brown & Williamson to take out an ad in the paper and say we think smoking carries a risk of disease.

Q. Well sir, isn't it true that Brown & Williamson and the other members of the Tobacco Institute have for years engaged in a campaign to tell smokers that there is a controversy over whether or not smoking causes disease?

MR. McGAAN: Object, argumentative, assumes facts that are not in evidence, specifically with respect to membership in the Tobacco Institute.

A. I don't have any direct involvement with the Tobacco Institute so -- and I haven't made it a part of my job to review all of their materials or what

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they've said or represented. I don't know if there has been a campaign, as you describe, and I don't remember everything you said, to tell smokers there's a controversy.

Q. Well sir, you have referred in your expert report to numerous occasions when you have reviewed Brown & Williamson documents on the issues of smoking and health; right?

A. Yes.

Q. Well in that review did you find the Tobacco Institute document entitled "The Smoking Controversy, A Perspective"?

A. I don't remember that particular document. I may have come across it, I've reviewed literally hundreds, probably thousands of documents. I don't remember that particular one.

Q. Well how about the document from the Tobacco Institute entitled, quote, the cigarette controversy? Do you recall seeing that document that was put out by the Tobacco Institute?

A. Not as I sit here today, but I may need to go back and review my documents. I don't recall that specific document, but there's so many documents that have so many similar titles, I may have very well seen that one.

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Q. All right. Well sir, let me ask you this, in review of your -- of all these documents did you see a Tobacco Institute document entitled "The Cigarette Controversy, Eight Questions and Answers"?

A. Not that I recall.

Q. All right. Well sir, isn't it true that Brown & Williamson is a member of the Tobacco Institute?

A. Yes, we are.

Q. And as a matter of fact, Brown & Williamson funds public statements made by the Tobacco Institute concerning smoking and health; right?

A. I don't know what the exact funding relationship is. I assume that we pay an annual fee or annual dues to the Tobacco Institute, statements are made by the Tobacco Institute so if that means we fund it, it may mean that, but I don't know and I don't think I can speak authoritatively to where funding goes and if there's certain specific funding relationships that we may or may not be involved in.

(Discussion off the stenographic record.)

Q. Well sir, isn't it true that the tobacco industry as a whole has, for years, employed a strategy of casting doubt about health charges relating to smoking and health without actually denying them so that there would be confusion among

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smokers as to whether what the public-health authorities were saying was accurate?

MR. McGAAN: Object, lacks foundation, compound.

A. Not that I'm aware of.

Q. Sir, showing you what's previously been marked in this litigation as Plaintiffs' Exhibit 405. That is a document from Fred Panzer to Horace Kornegay entitled "The Roper Proposal"; right?

A. Just one minute, please, let me tidy up my area so I can have a look at it.

I'm sorry, I forgot your question. Could you please repeat it?

Q. Yes, sir. Showing you what's previously been marked in this litigation as Plaintiffs' Exhibit 405, this is a document from Fred Panzer to Korace Hornegay -- Horace Kornegay, pardon me. Correct?

A. Yes, May 1, 1972.

Q. Yes, sir. Right?

A. Umm-hmm.

Q. For the record, Exhibit 405 bears the Bates number 87657703; right?

A. Yes.

Q. And it says here, "For nearly twenty years, this industry has employed a single strategy to defend

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itself on three major fronts..."
A. I can't find where you're reading from.
Q. Sir, directing your --
A. Oh, the second paragraph?
Q. Yes.
A. Okay.
Q. I apologize. Let me begin again.
Sir, there it says, in the second paragraph, For nearly twenty years, this industry has employed a single strategy to defend itself on three major fronts - litigation, politics, and public opinion"; right?
MR. McGAAN: Object unless the question is asking the witness --
A. Are you asking me whether I agree?
MR. McGAAN: Let me finish the objection.
The objection is stated because it's misleading, whether you're asking the witness to interpret the document or to simply verify that you're reading the words correctly.
You can answer.
A. Well if you're asking me if you are reading this accurately into the record, the answer is yes.
Q. All right. And it goes on to talk about health charges in the first bullet point, doesn't it?

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MR. McGAAN: Object, lacks foundation.
A. I'm not sure where you are. You mean "while the strategy was brilliantly conceived" or -- Where are you?
Q. All right. Under the --
A. First bullet point it says "creating doubt about" --
Q. -- "the health charge without actually denying it"; right?
MR. McGAAN: Object, lacks foundation.
A. The first bullet point, I haven't had a chance to read the paragraph under which the bullet point appears, says, "creating doubt about the health charge without actually denying it."
Q. All right. Why don't you read the paragraph that that's contained in, sir.
A. "While the strategy was brilliantly conceived and executed over the years helping us win important battles" -- this is a poor quality so I can't tell that word -- "it is only fair to say that it is not - nor was it intended to be - a vehicle for victory. On the contrary, it has always been a holding strategy, consisting of," and now the first bullet point, "creating doubt about the health charge without actually denying it."

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Q. Now sir, isn't it true that even today the tobacco industry as a whole, including your testimony here, is trying to create doubt about the health charge without actually denying it?

MR. McGAAN: Object, lacks foundation with respect to this document, mischaracterizes his testimony.

A. Not to my knowledge. What I'm trying to do is be scientifically precise on the questions you're asking, and defining, when you ask, for example, does cigarette smoking cause disease, you know my first question is what do you mean by "cause," what's the context, what's the objective of the assessment, what's the assessment criteria? And I believe I explained, under one set of criteria you may come out in one place, under another set you come out in another place. I'm trying to be as scientifically precise and accurate as I can be.

Q. Well sir, let me ask it this way. Isn't it true that the industry has engaged in attempts to try and convince the public, who have heard about what the public-health authorities say about smoking, that indeed there is a controversy about the accuracy of what the public-health authorities are saying?

A. I don't know whether or not the industry has

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done that, is trying to convince the public about the -- about a controversy. I can tell you there are many controversies about tobacco. Whether or not we have engaged in what you characterize, I have no idea. I haven't been exposed to that.

Q. So those -- the documents concerning the -- the issue -- whether the issue of smoking and health was embroiled in controversy just haven't come to your attention while you were engaged in your review of Brown & Williamson documents?

A. No.

(Interruption by the reporter.)

(Discussion off the stenographic record.)

(Recess taken from 11:43 to 11:45 a.m.)

BY MS. WIVELL:

Q. Do you have the question in mind, sir?

A. Could you please repeat it?

Q. Certainly. Documents concerning the issue of whether there was a smoking-and-health controversy haven't come to your attention while you were engaged in your review at Brown & Williamson; is that right, sir?

A. I reviewed hundreds, perhaps thousands of documents, as I indicated, and from that review, in my view, I've identified many, many controversies,

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and let me give you an example of some. It's a complex area.

One of the first things that was identified, and I think you even read it -- read it, was in the surgeon general's report it was thought that benzo(a)pyrene may be the causative agent in cigarette smoking as far as lung cancer's concerned. Subsequent studies indicated that there's no way that benzo(a)pyrene can account for the activity observed from smoke condensate in the mouse skin-painting test so that was a controversy, and remains a controversy to this day. There's controversies about why people smoke and what seems to be the important factor. Some people think it's nicotine, some people think it's other things, some people think it's somewhere in between. There's controversies about which type of tobacco, flue-cured or burly, may have more biological activity.

(Interruption by the reporter.)

A. There's controversies about which test appropriately measures disease-causing potential, if any, in cigarette smoke, is it a bacterial mutagenicity test, is it a rat inhalation test, is it a mouse skin-painting test. I could go on and on. There are many, many controversies that have

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unanswered questions that I found in my review of the documents.

Q. And did you find that there had been public statements made by the Tobacco Institute on behalf of its member companies to the public to the effect that the question of smoking and health was embroiled in controversy?

A. I don't specifically remember seeing statements from the Tobacco Institute.

Q. Showing you what's previously been marked as Plaintiffs' Exhibit 407, this is a document that was issued by the Tobacco Institute that begins with the Bates number 1020570. Now sir, have you ever seen this document before?

A. No.

Q. Why don't you take a moment and read it over.

A. Okay.

Q. Now sir, you've had the opportunity to review Exhibit 407.

A. Yeah.

Q. Now this press release starts by saying "The cigarette industry declared today that the question of smoking and health is 'embroiled in controversy'." Right?

A. Yes. That's what the document says.

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Q. And then it goes on to talk about whether or not the issue of smoking and health was controversial.

MR. McGAAN: Object, mischaracterizes the release.

A. It talks about a lot of things. I mean, that's your characterization of that.

Q. Well let me ask you this, sir. Isn't it true that up till today the cigarette industry still asserts to the public that the question of smoking and health is, quote, controversial?

A. I'm not -- Again, I said I'm not familiar with public statements or messages that go out. I'm here to talk about scientific issues, and I can tell you there are many scientific controversies. I'm not sure what the cigarette industry does or says. I haven't made it my job to endeavor to find that out.

Q. Sir, do you know who Dr. Francis J. Roe was?

A. I hope still is. Yes.

Q. Is Dr. Roe still alive?

A. I don't know.

Q. Have you ever spoken with Dr. Roe?

A. Yes, I have.

Q. On the issue of smoking and health?

A. No.

Q. Now sir, are you aware that Dr. Roe took the

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position back more than 15 years ago that it wasn't really true that there was a raging controversy about the causes of -- causal link about smoking and certain diseases?

A. May I see the document you're referring to?

Q. Well I'm asking you first of all if you're aware of that fact.

A. I've -- I remember seeing a document where he essentially says he doesn't think it's -- What is the way he put it? I forgot. Is something that would essentially be accepted to even talk about a controversy. In essence he's saying it's not politically correct.

Q. Well sir, he went on to say that the evidence was so overwhelming that he didn't feel that smoking -- that there was a smoking controversy; right?

MR. McGAAN: I object, counsel's reading from a document and used the phrase "went on to say" and it's -- this witness doesn't know what you're talking about with regard to that document. It calls for speculation.

A. I have reviewed a document where Francis Roe speaks. I don't know if it's the document you're looking at or not, and I don't remember the details of his conclusions.

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Q. Well do you remember a document where he concluded that the smoking, quote unquote, controversy was largely a result of American lawyers thinking?
A. No, I don't remember that.
Q. Sir, showing you what's previously been marked in this litigation as Plaintiffs' Exhibit 422, this is a document which you have reviewed, isn't it?
A. I believe I have seen this one.
Q. All right. Just so the record is clear, Exhibit 422 begins with the Bates number 100432193; right?
A. Yes.
Q. And it is a letter which Francis Roe wrote to Dr. Ray Thornton; correct?
A. That -- Yes, that's what it appears to be, yes.
Q. All right. Now Ray Thornton was then head of Group Research and Development Centre for British-American Tobacco Company; right?
A. I don't know if he was the head. He certainly appears to be from it because that's what the document says.
Q. All right. You have dealt with Mr. Thornton in your activities as an employee of Brown & Williamson.
A. Yes.

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Q. You've spoken with him personally; right?
A. Yes, I have.
Q. When was the last time you spoke to Dr. Thornton?
A. Probably about three years ago.
Q. Have you ever spoken with him about this document, sir?
A. No.
Q. All right.
A. I didn't know this document existed until about a week ago.
Q. Now sir, Dr. Thornton, just so the ladies and gentlemen will understand, was an employee of what is referred to in the vernacular at Brown & Williamson as BATCo; right?
A. Yes.
Q. BATCo is short for British-American Tobacco Company, Limited.
A. Yes.
Q. Now before 1976, BATCo was the ultimate parent company of Brown & Williamson, wasn't it?
MR. McGAAN: Lacks foundation as phrased.
A. I don't know.
Q. All right.
A. I don't know the organization natural

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relationship and the history of it.

Q. Well you would agree that since 1991 when you joined Brown & Williamson, BATCo has been a sister company; right?

A. That's been my understanding of the relationship, yes.

Q. And you understand that Brown & Williamson and BATCo have an information-sharing relationship whereby information that one company has on smoking-related issues is shared with the other.

A. Yes.

Q. And sir, this document, Exhibit 422, was written in response to Doctor -- to Dr. Roe's review of a document or a book on smoking and health; right?

A. That's what it appears from the cover letter, yes.

Q. All right. And that document is referred to as the "son of Blue Book," isn't it?

A. Could you direct me to where it says that?

Q. Well sir, I'm asking you whether -- Do you know what the phrase "Blue Book" refers to?

A. No, I don't.

Q. It's a phrase you've never heard referred to?

A. I reviewed this document recently and I think I saw it referred to in there but that was the first

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time I had seen that phrase.
Q. All right. Well did you understand that a book entitled Smoking and Health was put together by BATCo in order to discuss the issues relating to cigarette smoking and public health?
A. I don't think I'm familiar with the particular book you're talking about, if it's the Blue Book. I had not heard of it previously.
Q. But just so the record is clear, Exhibit 422, on the first page, indicates that Dr. Roe had been asked to review a book entitled Smoking and Health; right?
MR. McGAAN: Object.
A. Yes.
MR. McGAAN: Objection, mischaracterizes the document.
Q. And he says he found much to criticize and little to praise in the book.
A. Yes.
Q. And he goes on to say, "It falls far short of credibility"; right?
A. Well a long way short of credibility, yes.
Q. All right. Now he goes on in the subsequent pages of the document to list his thinking paragraph by paragraph; right?
A. Yes.

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Q. And the first thing he says is, quote, "It is not really true, as the American Tobacco industry would like to believe, that there is a raging worldwide controversy about the causal link between smoking and certain diseases"; right?

A. That's what the document says.

Q. He goes on to say, "Common sense based on overwhelming circumstantial evidence is enough, in the case of, say, the influence of smoking on lung cancer risk - not to prove causality (since proof of causal link is elusive for all diseases) - but enough to render the matter not one of major 'worldwide controversy' and certainly not one in which the two sides of the issue are evenly balanced"; right?

A. That's what the document says.

Q. Now Dr. Roe also went on, on the page that ends with Bates number 196, to talk about the balance of probabilities, doesn't he?

MR. McGAAN: Object unless the witness has had time to read that.

A. Where are we talking about?

Q. Point 10.

A. Okay. I'm sorry, I forgot the question you asked on point 10.

Q. All right. In point 10 it says in part,

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"However, in the real world one has to make decisions on the basis of quote balance of probabilities closed quota (a phrase well known to lawyers!). This is precisely what the Medico-Scientific Community has done in assuming that smoking is a cause of lung cancer - and it is difficult to argue that they are likely to have reached the wrong conclusion"; correct?

A. That's what the document says, yes.

Q. Now let me ask you this, sir. In your review of documents, did you ever find one in which Brown & Williamson told smokers who were buying its cigarettes that a consultant to its sister company had concluded that it was difficult to argue with the conclusion that had been reached by the medical scientific community with regard to the issue of the cause of lung cancer?

A. I don't recall seeing a document where Brown & Williamson told its smokers that, no.

Q. All right. Did you see any document where Brown & Williamson made any kind of public statement to the effect that cigarette smoking is a cause of lung cancer?

A. Not that I recall, no.

Q. Well sir, Dr. Roe goes on to give his general

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impression concerning this book that had been put together at BATCo entitled Smoking and Health; right?

MR. McGAAN: Object.

A. Are you referring me to a specific passage?

Q. He gives his general impressions on page 198; right?

MR. McGAAN: That's a different question so I withdraw my objection.

A. Bates number 198?

Q. Yes.

A. And I'm sorry, you're referring me to what passage or general impression?

Q. Dr. Roe gives his general impression about this booklet entitled Smoking and Health on the page that ends with Bates number 198; right?

A. Yes. Can I read it?

Q. Why don't you read it out loud.

A. "This reads to me like a mixed" mirage "between traditional American lawyer exhaled gas and discretely coughed up Anglo-Saxon phlegm."

Q. Is that "mixed marriage"?

MR. McGAAN: This should be in quotes, Debby, he's quoting.

A. Yes, it is "marriage."

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Q. And he goes on to say "The two do not bed well together"; right?

A. Right.

MS. WIVELL: Why don't we take a lunch break.

(Discussion off the stenographic record.)

MR. McGAAN: I want the record to reflect that counsel has asked the witness not to finish reading the quote from the document.

MR. FRIBLEY: And I have a statement that should go on the record as well. During the morning break I contacted local counsel for Reynolds regarding the deposition that Ms. Wivell inquired about earlier this morning in the Shires case, I think it is, and he confirmed that the Reynolds advice to Mr. McGaan and to Mr. Appleton was that the deposition was sealed at the time and we cannot unilaterally lift that prohibition. I was also informed that Reynolds, in December of 1996, apparently unilaterally made the decision to produce that deposition in this case and it's in box 2952 in the depository, so it should be available to --

MS. WIVELL: Thank you.

MR. FRIBLEY: -- plaintiffs through Reynolds.

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THE REPORTER: Off the record, please.

(Luncheon recess taken at approximately 12:05 p.m.)

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AFTERNOON SESSION

(Deposition reconvened at approximately 1:21 p.m.)

MR. McGAAN: Ms. Wivell, during the lunch break I checked my voice mail and had a message that Ms. Forbes' office had contacted me with regard to your demand for the Shires transcript and I got essentially the same message that I think Jack Fribley got and put on the record before the lunch break, and that is that RJR still does not permit Scott Appleton to release the deposition subject to the protective order in that case, which I understand is still is, but that in fact the deposition was produced on a confidential basis to the depository in this case in Minnesota, and I think you have on the record the box number it's in. So that was news to me when I heard it from Mr. Fribley this morning, and it is available to you. We continue to have no objection on behalf of Brown & Williamson to you looking at it, wherever and whenever you can get your hand on it.

MS. WIVELL: Thank you.

BY MS. WIVELL:

Q. Now sir, before we took a lunch break we were talking about the subject of whether or not there was

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a smoking-and-health controversy. Do you recall that, sir?
A. Yes.
Q. All right. Are you aware that the Tobacco Institute has had representatives go on various news programs, "Nightline," "MacNeil Lehrer" and so forth, and claim that there was indeed a smoking-and-health controversy?
A. I've seen some Tobacco Institute representatives on various shows responding to questions that were being asked of them and giving opinions about various views, but I don't recall them specifically talking about a controversy.
Q. All right. Well here, let me show you a transcript of a Lehrer MacNeil show that Walker Merriman was on and ask you if you've seen it before.
A. This transcript?
Q. Yes, sir. For the record, I'm showing you Exhibit 467 which is a Tobacco Institute document which is a transcript of a Lehrer MacNeil program in March of 1982. Right?
MR. McGAAN: "MacNeil Lehrer," you mean?
Q. Yes, I'm sorry, 'MacNeil Lehrer.' ?
A. March 1982, yes, it looks like it.

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Q. And for the record, Exhibit 467 is Bates number 503679198.

A. Umm-hmm.

Q. You have to answer out loud, sir.

A. Yes, that's correct. Sorry.

Q. Would you turn to the eighth page of the document, the one that ends Bates number 205.

A. Umm-hmm. I mean, yes.

Q. Do you have it there?

A. Yes.

Q. Would you review for yourself the statements of Walker Merriman.

A. And that begins about a third of the way down, first --

Q. Well Lehrer says "it's not a controversy," --

A. Right.

Q. -- and then after that Merriman responds; right?

A. Right. How much would you like me to read, just the first statement?

Q. Just the page.

A. Okay. Okay.

Q. Now sir, you've read the page that ends with Bates number 205?

A. Yes.

Q. And there Mr. Merriman is reported to have said

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in response to Lehrer's comment, "it's not a controversy," "Well, it certainly is," and then he goes on to explain why he thought it was a controversy; right?

A. Right.

Q. Now sir, let me ask you this, would it be reasonable for people who smoke cigarettes, and heard Mr. Merriman claim that there was a controversy over whether cigarettes caused disease, to believe what Mr. Merriman was saying?

A. Mr. Merriman seems to be expressing an opinion based on a question that's asked of him, which I think is appropriate for him to give his views if he's asked for those views. I don't know what you mean by "is it reasonable." I think people can take his -- his -- what he says at whatever value that they want. They -- They see him as a representative of the Tobacco Institute and they say, okay, this guy's talking, he's expressing an opinion. Whether they believe it or not is up to them.

Q. Well it would be reasonable for people to believe him when he says that the scientific literature is sufficiently inconclusive on the subject of smoking and health; right?

A. I don't know if it would be reasonable to

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believe him or not. I think what would be reasonable is for them to understand he's expressing his opinion on a direct question that was given to him and he's giving his opinion and that --

Q. Well sir --

A. -- and then I would think it would be reasonable for them to understand he may or may not have a basis for his opinion, and they can agree or not agree or believe or not believe.

Q. Let me ask you this. Have you read Walker Merriman's testimony in this case?

A. No.

Q. Do you --

Are you aware of the fact that Walker Merriman testified that when he spoke it was as the voice of the tobacco industry?

A. No, I'm not aware of that.

Q. All right. Well let me ask you this, if the tobacco industry said to smokers there's a controversy here, that scientists differ in opinion as to whether or not smoking causes disease, you'd agree that it would be reasonable for people to rely on what the industry was saying; right?

MR. McGAAN: Object, vague.

You can answer.

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A. I think people form their views about things from all sorts of information, all sources of information. They get warnings on the pack, they've heard Public Service commercials on TV and read things in the paper, and Reader's Digest and, you know, an infinite number of other sources, and they form those views, and then hearsay, talking to their friends and family and neighbors and whatever. They form their views based on a lot of information coming from a lot of places. If they hear a person who's a representative of the tobacco industry stand up and answer a question and give his opinion on what that question is, they can do a lot of things with it. They might rely on it, they might not. They may believe it, they may not. They may say, well I understand his views and I understand the basis of it but I don't agree with it, or I do, or I believe it or I don't. I don't -- I think people are independent and they can form their views based on all sorts of information that they get from all sorts of places.

Q. Well in your extensive review of documents at Brown & Williamson, have you ever seen a document that -- where the tobacco industry said, folks, don't believe what we're telling you about the fact that

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cigarette smoking and disease is a controversial subject?

MR. McGAAN: Object, lacks foundation, argumentative.

A. Have I ever seen a document that says folks, don't believe -- don't believe us when we tell you it's a controversial subject? I don't recall seeing a document that says that, no.

Q. All right. Or says anything to that effect?

MR. McGAAN: Same objection.

A. No, I don't recall seeing a document that says that.

Q. Well sir, would you agree that it would be reasonable for smokers, if they heard someone say we don't believe what the surgeon general said, and that someone was from the tobacco industry, would it be reasonable for smokers to believe what they heard?

MR. McGAAN: Object, compound, speculation.

A. I think if -- if the substance of what they say seems to make sense to the people who are receiving the message based on what they've heard elsewhere, based on what they believe and other views they've already formed, then they may believe it. If it doesn't seem to be in sync with what they've said,

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then they may not believe it. And I'm not sure if the purpose of these statements is to get people to rely on them or to form views, it's -- it seems to me he's simply voicing an opinion in response to a direct question, which it seems to me he's entitled to do.

Q. Well let me ask you this. You said -- and I'm going to quote you here because I want to make sure I get it right -- earlier in the deposition, quote, "we feel that people ought to be aware of whatever risks are associated with smoking, and that in a free society where -- where society has said people can have access to tobacco products so it's acceptable for adults to have access to tobacco products...they ought to be aware of the potential risks." You said that; right?

A. Yes.

Q. All right. And sir, you would agree that one of the places that a smoker should have the right to be able to look to get accurate information about the risks that are associated with smoking is from the tobacco companies; right?

A. That's -- Yeah, they can -- they can look to that if they wish to. They can get their information from a variety of sources.

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Q. Sir, I'm going to show you what's been previously marked as Plaintiffs' Exhibit 465 and ask you to take a look at it and tell us, after you've looked at it, what information about risks associated with smoking is found on this package, Exhibit 465.

A. What information about risks associated with smoking you're asking me?

Q. Yes, sir.

MR. McGAAN: Do you know whose deposition that was identified in?

MS. WIVELL: Merriman's.

A. I don't see a warning statement on this package. It makes me suspect that it was produced before 1966.

Q. Why do you suspect that that package of cigarettes was produced before 1966, sir?

A. Because 1966 is my understanding of when warning labels were mandated to be put on the packs.

Q. All right. And who mandated that warnings labels be put on the packs?

A. I don't know who specifically. I -- I know it was a federal agency, maybe the Federal Trade Commission.

Q. Well do you understand that Congress passed a law requiring warning labels on cigarette packs?

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A. That makes sense.
Q. You would agree that before those mandated warnings there was not a cigarette package sold in the United States that contained one iota of information about the risks associated with cigarette smoking; right?
MR. McGAAN: Object, lacks foundation, argumentative.
A. I don't know if I can agree to that because I haven't reviewed all cigarette packs, but I'll -- if we assume that they didn't contain warnings, can we proceed? I don't know if they contained warnings or not. I assume they didn't.
Q. All right. But you know that this pack, Exhibit 465, doesn't contain any statement about any hazard associated with smoking.
A. Oh no, I don't see any statement about that.
Q. So if people ought to be aware of whatever risks are associated with smoking, as you said, you would agree that generally before 1966 they weren't getting that information off cigarette packages, were they?
MR. McGAAN: Object, lacks foundation.
A. I don't think before 1966 there was a general consensus within the scientific community that -- that the evidence regarding hazards rose to the point

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where it was necessary to provide warnings. I mean even -- it was only in 1964 that the surgeon general released their first report, which is only two years prior to when the warnings on the pack were made.

Q. But we do know that as of 1964 the surgeon general's report concluded that cigarette smoking has a health hazard of sufficient importance in the United States to warrant appropriate remedial action; right?

A. Yes.

Q. And before health warnings were mandated, as you put it, on cigarette packages, the tobacco industry did not voluntarily put any cigarette warnings on their packages, did they?

A. Not to my knowledge.

MR. McGAAN: Object, lacks foundation.

Q. Sir, I'm going to show you what's previously been marked as Plaintiffs' Exhibit 173. This is a pack of GPC cigarettes; right?

A. Yes.

Q. Now GPC is currently Brown & Williamson's current -- its most -- it's the product that sells the most; right?

A. I think it is our highest-selling product.

Q. All right. Would you please read for the ladies

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and gentlemen of the jury what's written on that pack of cigarettes?

A. Well do you -- Everything, or do you mean the health warning?

Q. I mean the health warning.

A. It says, "SURGEON GENERAL'S WARNING: Smoking By Pregnant Women May Result in Fetal Injury, Premature Birth, And Low Birth Weight."

Q. Let me ask you this question, sir, keeping in mind that that's the attorney general's [sic] opinion, does Brown & Williamson agree with that statement?

A. Well I think that the epidemiological evidence suggests that there is an association, and in that respect it may result in it. It doesn't say here "it does" or "it does cause," but that it may result.

Q. So you would agree essentially with the surgeon general's warning concerning low birth weight?

A. What I would say is that there is statistical association, as established through epidemiological evidence. If one is looking to determine whether or not a warning like this is appropriate, and looking at primarily epidemiological evidence, there is sufficient epidemiological evidence to warrant this sort of a warning.

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Q. Now sir, let's take a look at another pack of cigarettes here. Showing you what's previously been marked as Plaintiffs' Exhibit 309, this is a pack of Kool cigarettes, which is currently Brown & Williamson's second-most-popular product; right?

A. I believe it's the second -- as far as volume sales is concerned, I believe it is.

Q. And would you please read what -- the health warning that's written there.

A. Okay. It says, "SURGEON GENERAL'S WARNING: Smoking Causes Lung Cancer, Heart Disease, Emphysema, And May Complicate Pregnancy."

Q. All right. Now sir, let me ask you this, does Brown & Williamson agree that smoking causes lung cancer?

A. Well I think we've been through this. Where you -- What you decide on causation I think depends on what your objectives are and what your assessment criteria are. If your objective is determining whether or not it's appropriate to warn the public about potential hazards and your assessment criteria are based primarily on epidemiological evidence, then I think it's an appropriate statement to make.

Q. Well I know that it's an appropriate statement to make because Congress has decided it is.

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What I'm asking is does Brown & Williamson agree that smoking causes lung cancer?

MR. McGAAN: Object, move to strike counsel's statement.

A. And let me finish my statement.

We agree that there is an association, as I said, it may, but when we look at it from a different view, which is from determining what we need to do to modify our product to respond to that issue, we simply don't know. If someone asks me what is it about your product, or if someone asks any member of the scientific community what is it specifically about this product that causes lung cancer, heart disease, emphysema and complicates pregnancy, we don't know, and no one can tell us. If --

Q. All right.

A. Let me finish my answer, please.

Q. I'm sorry, sir.

A. If someone asks me, well what particular constituent or class of constituents in this product causes lung cancer, heart disease, emphysema and complicates pregnancy such that if I removed them it won't do that, I don't know. The surgeon general can't tell me, and nobody in the scientific community knows. If someone asked me, well how can we test

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that in an animal bioassay or test system so I can determine the potential of this with reliability to causes lung cancer, heart disease, emphysema and complicating pregnancy, no one knows and I don't know. And if someone says, well what's the mechanism of how cigarettes do this, I don't know and anyone knows. So if I apply those criteria to the general issue of what is it about this product that needs to be changed or fixed, I don't know. So that leaves significant question marks in my mind as to just what -- what is the cause, if it causes at all, and what needs to be done to remediate the problem.

Q. Well sir, keeping in mind that I didn't ask you any of those questions, let me ask my question again.

Sir, does Brown & Williamson agree that smoking causes lung cancer?

MR. McGAAN: Object, asked and answered, move to strike counsel's precatory statement.

A. And my answer is it's not a simple yes-or-no question, it's a very complicated picture, it depends upon what your assessment criteria are, what position you're in looking at the issue. But I answered the question that if you're relying on epidemiological evidence to determine whether or not a statement like

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this is appropriate, my answer is, based on the epidemiological evidence a statement like this is appropriate.

Q. Well sir, I'm not asking whether the statement is appropriate, I'm asking whether you agree.

So are you telling us you -- that you, on behalf of Brown & Williamson, agree that epidemiologically the evidence shows smoking causes lung cancer?

A. I'm saying if you're viewing it from the public-health perspective of trying to decide whether or not it's appropriate to make warnings like this and warn the public, and your evidence or your assessment criteria are primarily based upon epidemiological evidence, one would conclude, given those caveats, that smoking causes cancer. But if you apply more rigorous criteria, which in some cases, in my opinion, is appropriate, then you are left with a question mark and you simply don't know.

Q. Well sir, you keep going back to whether it's appropriate to make this warning. The surgeon general's made this warning; right?

A. Well I thought you were asking me if we think it's appropriate.

Q. Yeah, that's right.

A. Yes, I know the surgeon general's made the

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warning.

Q. Okay. And so I'm asking you: Agree or disagree, yes or no?

A. I'm sorry but --

MR. McGAAN: Let me just object. The question's now been asked about seven times in the deposition and the witness has answered it each time. He does not need to answer it yes or no if the question does not permit such an answer, which clearly the seven or so times he's answered it has demonstrated it does not.

Go ahead and answer it again.

A. Ma'am, many things in life it would be nice if they -- we could reduce them to simple yes-or-no's but many things are not like that, they're very complicated, and this does not lend itself to a simple yes-or-no answer.

(Interruption by the reporter.)

A. I'll repeat that.

It would be nice if many complicated things in life could be reduced to a simple yes or no or black or white, but many things can't, and as much as we would like to, this is not a simple yes-or-no question, it's a very complicated matter.

Q. Well let me ask you this: Sir, does Brown &

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Williamson agree that cigarette smoking causes heart disease?

MR. McGAAN: Asked and answered.

A. Same answer.

Q. Well I'm not sure what that answer is, sir. What is the "same answer"?

MR. McGAAN: It's been asked and answered multiple times.

You can answer it again.

A. It depends upon your assessment criteria and what your assessment objectives are. If you're in the position of the public-health authority in trying to decide whether or not there's sufficient evidence to provide a warning to the public about possible hazards, and if you are using primarily epidemiological evidence for your assessment criteria, yes, there's evidence that smoking is a cause of cancer in that context, or I mean, I'm sorry, heart disease.

If, on the other hand, you're trying to decide what to do about your product and you are faced with a situation of saying well which constituent in smoke needs to be removed to prevent this? We don't know. If we are asking which attribute about the product needs to be altered to ameliorate this issue, we

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don't know. If we're asked which test needs to be used in an animal test system or some other biological test system to predict the potential of cigarettes to cause heart disease, we don't know.

And ultimately if we're trying to decide what mechanism do we need to go after to fix this problem, we don't know. So we're left with no guidance, ultimately we're left with a lot of question marks about what really is happening, if anything.

Q. Okay. Well keep in mind I'm not asking you as a public-health group because Brown & Williamson's a private company; right?

A. Yes.

Q. It makes money.

A. I hope so.

Q. Its objective is to make profits; right?

A. Among other things, yes.

Q. Okay. And keep in mind that I'm not asking you what to take out of your product or any of those things, but I'm asking you based on your statement that people ought to be aware of whatever risks are associated with smoking, like you said.

Does Brown & Williamson agree that cigarette smoking causes heart disease?

A. I've answered that question.

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MR. McGAAN: Let me just object and move to strike the introductory material, which is improper.

A. I believe I've answered that question.

Q. I don't think I've asked it that way before, so could I have an answer to my question, sir?

MR. McGAAN: Object, it's been answered multiple times, but under the rules of this deposition, Dr. Appleton, we can spend all day doing it, so go ahead and answer it again.

A. As I said, if your objective is to provide warnings or determine if it's appropriate, or if it's time to or if there's enough evidence to provide a warning to the public that there may be a possible hazard associated with a particular activity or product such as cigarettes, and if you're relying primarily on epidemiological evidence for your assessment criteria, then we would conclude there's sufficient evidence to warn the public.

Q. All right. Let's --

A. And relying on epidemiological evidence as our primary basis, in that context one could say, well, yeah, it may cause heart disease.

Q. Okay. Well let me ask you this, then, where has Brown & Williamson ever said we agree that, yeah, it may cause heart disease, cigarette smoking may cause

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heart disease?
A. I don't know about Brown & Williamson, but this document that you gave me from the Tobacco Institute dated 1982 says it may cause disease, at least that's what Mr. Merriman said.
Q. All right. I'm asking --
A. And I didn't examine the whole document, I just read the only passage that you gave me.
Q. Sir, move to strike as nonresponsive.
Let me ask you this. Where has Brown & Williamson ever said, yes, we agree cigarette smoking may cause heart disease?
MR. McGAAN: Object, asked and answered. Also I'm not going to respond to counsel's motions to strike, just for the record, so we don't clutter it up. That doesn't signal acquiescence.
A. I don't know where they may or may not have said that. I haven't attempted to find out or learn or discover all of the statements Brown & Williamson has made internally or externally, and where they may or may not have said that either directly or through their representatives, such as the Tobacco Institute. I just don't know. They -- And I'm not saying that they have, and I'm not saying they haven't. I'm saying I just don't know because I

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haven't even attempted to ascertain that.
Q. Well in reviewing the thousands and thousands of documents that you test about -- testified about before, have you even seen one statement where Brown & Williamson said, yes, cigarette smoking may cause heart disease?
MR. McGAAN: Object, lacks foundation as to the nature of the review. You can answer.
A. As I sit here today, I can't recall. I would need to go back and review more documents, but I'd like to reserve my right to produce something if and when I discover it.
Q. Well sir, you issued a report, didn't you, for this deposition here today?
A. Yes.
Q. And in preparation for that deposition -- or in preparation for that report you reviewed, I think you said, thousands and thousands of documents; right?
A. Well I don't know if it was thousands and thousands. I said hundreds and perhaps thousands. I didn't count them.
Q. Well just so we're clear here, you've gone through a lot of documents in preparation; right?
A. Yes.
Q. And as you sit here today you can't direct us to

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one where Brown & Williamson has told the public, yes, we believe cigarette smoking causes heart disease.

MR. McGAAN: Same objection.

You can answer.

A. I just answered the question, which is they may have, I don't know. They may not have. I haven't attempted to ascertain that.

Q. But you can't --

A. Not as I sit here today I can't recall one. But that's not an area that I would be involved in that I would know about that necessarily.

Q. Well sir, in reviewing these hundreds and thousands of documents that you mentioned in preparation for your deposition today, did you find one where Brown & Williamson said, yes, we agree cigarette smoking causes cancer?

MR. McGAAN: Object, no foundation as to the nature of the review.

You can answer.

A. I didn't focus on documents of that nature, I focused on scientific reports from Brown & Williamson and from its sister company, BATCo, concerning various smoking-related matters. They were scientific reports, they weren't public statements,

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issued statements or press statements or anything like that. I simply didn't focus in that area.

Q. Well sir, while you were reviewing those documents did you come across documents from Dr. Stephen J. Green that addressed the subject of cigarette smoking and whether it caused disease?

A. I've seen some by him, yes.

Q. Sir, showing you what's previously been marked as Exhibit 314, this is a document written by Dr. Green, isn't it, sir?

A. If his initials are SJG that might suggest it. That's the only indication I have of it on this document.

Q. Well you understand that there was a Stephen J. Green who was head of research and development at BATCo; right?

A. I believe that was his -- This is way before my time so I don't have firsthand knowledge of it, but I believe that he was in that position at BATCo at some point.

Q. And he was also on the board of directors of BATCo, wasn't he, sir?

A. That I'm not aware of. He may have been. I'm not disputing it.

Q. Now sir, you've seen Exhibit 314 before, haven't

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you?

A. Well let me look and see if I have seen this one. I think I've seen this one, yes.

Q. For the record, Exhibit 314 begins with a Bates number 100428102; right?

A. Umm-hmm. I mean, yes, ma'am.

Q. All right. Now sir, this document is entitled "CIGARETTE SMOKING - CAUSAL RELATIONSHIPS."

A. Correct.

Q. And it begins by stating, "In their public relations the tobacco companies are particularly sensitive to the question of 'causality'"; right?

A. Yes.

Q. And "causality" is in quotes; right?

A. Right.

Q. And the author then goes on to say, "To the medical profession and others this attitude is hardly comprehensible. Most doctors and even medical scientists rarely give much thought to what they mean by 'cause'"; right?

A. That's what the document says.

Q. All right. Now it also goes on to say, "Of course the public position of the tobacco companies is dominated by legal considerations"; right?

A. That's what the document says.

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Q. And the author continues, stating, "In the ultimate the companies wish to be able to dispute that a particular product caused injury to a particular person. By repudiating a causal role for their products they hope to avoid liability"; right?

A. That's what the document says.

Q. Sir, and isn't it true that that's what you're doing here today is trying to repudiate a causal role for cigarette products and hoping to avoid liability in this lawsuit?

MR. McGAAN: Object, argumentative.

A. No, not my opinion. I'm trying to be as particular about -- it says here that doctors and medical scientists rarely give much thought to what they mean by cause. I'm trying to be very precise about what I mean by "cause," and that's why I'm attempting to define it in very particular ways, as the surgeon general apparently did in 1964.

Q. Now sir, let me go back to my question, though. Isn't it your role to come here today and to say, oh, we really don't know one way or the other whether cigarette smoking causes disease so that your company can try and avoid liability?

MR. McGAAN: Asked and answered. Same objection, argumentative.

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A. That's not my understanding.
Q. Now if you turn to the second page of this document, there is a discussion about the kinds of evidence that the author thought was needed in order to determine whether or not a disease was caused by a particular incident; right?
A. Well what are you referring to on the second page? Do you want me to read the whole page?
Q. Why don't you read to yourself the paragraph that begins "a probabilistic" causeable -- "causality concept."
A. Okay. I've read the paragraph.
Q. All right. Now one of the sentences in this paragraph begins, "For example, if smoking is a factor in multiple correlations as has been indicated or if in studies on big populations smoking is associated strongly with some diseases this may be sufficient to substantiate a claim that smoking causes the increase in the incidence of such diseases in the second case or as is a cause of the disease in the first case"; right?
A. The sentence says that, yes.
Q. All right. Well let me ask you this, do you believe that the -- he's --
The author's talking about epidemiological

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evidence, isn't he?
A. Yes, I believe so.
Q. You've got to let me finish, sir.
A. I'm sorry, I thought you were done.
Q. All right. The author is talking about epidemiological evidence; right?
A. I believe so.
Q. All right. And this author believes that epidemiological evidence may be sufficient to show causes of disease; right?
A. Well --
MR. McGAAN: Object, mischaracterizes.
A. That's not exactly what it says because the rest -- if you go on, it says, for example, "But as far as an individual is concerned this (probabilistic) cause has no validity, and it would be quite improper to imply predictability."
Q. All right. Well keeping in mind that we're not talking about individuals in this case, we're talking about groups of people, do you agree that epidemiological evidence is sufficient to show -- or to prove cause in groups of people?
MR. McGAAN: Object, vague as to what case you're talking about. Move to strike.
A. I don't believe it is. First of all, if you

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can't prove causes in individuals, how could you demonstrate causes in groups of individuals? Even the surgeon general acknowledged that epidemiology isn't in itself sufficient to prove cause and effect. It depends on what is driving the associations being observed, because one can find associations, for example, between summertime and drowning, and I don't think anyone would say summertime causes drowning, but yet the association is there. You have to understand what's driving those associations. So I don't believe that necessarily consistent epidemiological associations can be sufficient to prove causation.

Q. Now sir, you have made a distinction in this deposition between epidemiological proof and absolute scientific certainty, haven't you?

A. Yes.

Q. All right. Just so we're clear here, what do you mean by "epidemiological proof"?

A. What I mean is if one is relying primarily on epidemiological evidence, and if it's sufficient in their view, that if an epidemiological association is statis -- is sufficiently strong, consistent, oh, congruent and some of the other criteria that are in the '64 surgeon general's report, evidence of a dose

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response and so forth, in many people's minds that may be sufficient for achieving certain objectives, that causation has been established. That's what I mean by epidemiological evidence or epidemiological proof.

Q. All right. Well you also used the phrase, quote, absolute scientific certainty; right?

A. Yes.

Q. What do you mean by "absolute scientific certainty"?

A. Well that could mean a lot of things too. What I mean is if you apply more rigorous criteria such as those that I've already discussed, that collectively you will be able to draw, with a great degree of confidence, a conclusion concerning causation.

Q. Well I'm not sure that I understand. Help me out here. You've mentioned "a great deal of confidence" in your answer there. How much confidence do you have to have to be absolutely scientifically certain on something?

A. I think it depends upon the individual circumstance and the nature of evidence that one has to draw on from the different areas of criteria that I elaborated. I think I mentioned four major areas. And it depends on how strong the evidence is in any

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one of the areas versus how weak it is in any of the others. I think you've got to look at all the four major areas, --

Q. Well we --

A. -- and I don't -- there's -- I don't have a general rule or a checklist or a guideline or a bright line. I can say that depending on what situation you're trying to evaluate you need to apply those criteria, you need to look at the nature of the evidence that you've got and draw a judgment about degree of confidence of the conclusion you can make, and again depending upon what objective you're trying to achieve in making that conclusion.

Q. Well let me --

A. Different objectives may require different hurdles of evidence.

Q. All right. Well in the smoking-and-health issue when you're talking about absolute scientific certainty, what kinds of evidence would it take to convince you that something -- that cigarette smoking caused disease to a, quote, absolute scientific certainty?

A. Oh, for example -- I mean it -- I think the epidemiological evidence would have to be there. You'd have to show a definite association according

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to the criteria that surgeon general has, but if you could also show, for example, if I remove a particular constituent from cigarette smoke then it's disease-causing potential would be ameliorated or will be either reduced or eliminated, or if I remove a particular class of substances from cigarettes then the scientific community would agree that, yes, those cigarettes are now safer, or if I can modify the product in a way that it'll show reduced activity in a particular type of toxicological test such as an Ames test, an inhalation study, a mouse skin-painting test or whatever test is thought to be relevant, if I can change my product to eliminate that type of activity, if there would be a consensus within the scientific community that in fact this has resulted in a safe cigarette then that would be very helpful in making the assessment and it would contribute to it. And finally, if I knew exactly what the mechanism was of how cigarette smoke produced disease and I had an actual biochemical target to go after to help focus my attention and efforts, and I knew that I could modify the product in a way that that mechanism wouldn't be expressed, and then again there would be general universal agreement that that has resulted in a safe or safer product, that sort of

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evidence would be helpful.

Now I may not be able to get that for all these four areas and so different types of evidence may weigh in to different degrees, but if I had information in those four areas, if I had absolute information in all four then there would be no controversy, but if I had strong evidence in two or three, or even one, two -- one or two compared to only one then that would be -- that would help -- that would weigh in more in the decision. But I can't give you an absolute formula or absolute set of criteria or checklist. It's an individual situation depending upon what material and product I'm looking at and trying to assess.

Q. Now sir, you've been involved in three depositions; right?

A. Well this is the fourth, and I'm not sure how many depositions this one counts for.

Q. All right. But you've been involved in several different legal depositions; right?

A. Yes.

Q. Has anyone ever explained to you that there is a difference between legal cause and, quote, absolute scientific certainty?

A. No.

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MR. McGAAN: Object. Object unless you mean to exclude from that question his conversations with lawyers.

Q. Well sir, do you understand that under the law of this state a direct cause is a cause which has a substantial part in bringing about the harm or injury?

MR. McGAAN: Object, lacks foundation, calls for a legal conclusion.

A. No, I don't understand that.

MR. McGAAN: You have to wait.

Q. All right. Well let me ask you this. If "legal cause" is defined in this state as a direct cause being a cause which has a substantial part in bringing about the harm, you would agree that that is a substantial -- substantially different from your definition of "absolute scientific certainty"; right?

MR. McGAAN: Object, lacks foundation, calls for speculation.

A. If you're asking me for a legal conclusion, I can't make one. I can only give you a conclusion as a scientist based on my review and assessment of the scientific literature.

Q. Well let me ask you this. Thinking about the

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scales of justice here, if we had scales equally balanced, is it more likely than not, based on the evidence that you know, that cigarette smoking causes disease? In other words, does -- do the scales tip ever so slightly in favor of cigarette smoking causing disease in your opinion, sir?

A. That's a hypothetical.

MR. McGAAN: Object. Go ahead. Object to the form.

A. That's a hypothetical.

THE WITNESS: Did you say "go ahead"?

MR. McGAAN: No, I know, but you got to just pause because we're going to start talking over each other.

THE WITNESS: I'm sorry.

A. That's a hypothetical question I have no basis to ask. You're asking me to give a probabilistic estimate that I have got no data to draw from to make that sort of assessment. I've given you my opinion, I think -- I believe you're venturing into the area of legal conclusions or legal opinions which I don't feel qualified to answer. I've given you my scientific opinion on this matter.

Q. All right. Well let me ask you this. Putting aside your belief that there is no absolute

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scientific certainty that cigarette smoking causes disease, if we were to put all the evidence on a scale, would it tip a little more to the -- to the idea that cigarette smoking does cause disease, in your opinion?

MR. McGAAN: Let me object, asked and answered. Also, doctor, I'm going to instruct you not to put aside any of your beliefs in answering counsel's questions today or tomorrow.

A. I believe I've answered your question. You've asked the exact same question now I think at least three times in the exact same way.

Q. I don't believe I have so I would -- I'd like an answer to it.

MR. McGAAN: She -- Object, she has asked it again, but -- over and over, but you can -- you have to answer again.

A. I believe you're asking me for a legal conclusion, and I've given you a scientific assessment on numerous occasions during this proceeding this morning. My answer is the same as it has been.

Q. Well sir, I'm asking for your opinion as a scientist. If you put all the evidence on a scale, isn't it true that it tips in favor of cigarette

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smoking being a cause of disease?

MR. McGAAN: Object, asked and answered.

A. Again you're asking me for a yes-no answer, in essence. This is complicated. It can't be answered in a simple yes or no, but you're attempting to frame it in a yes-or-no framework.

THE REPORTER: We have to go off the record and change tape.

(Recess taken from 2:07 to 2:17 p.m.)

BY MS. WIVELL:

Q. Now sir, before we took a break we were talking about the distinction between epidemiological proof and absolute scientific certainty; right?

A. Yes, ma'am.

Q. All right. Is that dichotomy, is that difference commonly used in the scientific field?

A. I don't know if it's commonly used or not. The reason why I use it is because it's clear to me when you look at the history of this issue that different definitions and criteria are applied to different things. I'm sure we'll get to that when we talk about addiction, because that was one of the questions in your request for admission. And it's clear that that's happened in causation as well. Even in the documents that we reviewed earlier this

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morning it was clear that the Surgeon General's Advisory Committee clearly wrestled with this issue, they spent an entire passage of the report talking about what does "cause" mean, they laid out various criteria, they said that if people didn't understand what it meant they would school them in it, they made statements that no one would use the word with absolute -- in an absolute way, I forgot what it was, because they're not so naive to believe that one single thing can cause a disease, et cetera. And then when you look at the, for example, the 1990 surgeon general report where the surgeon general did take up the issue of whether or not a modified cigarette, like a low-tar cigarette, is in fact safer, he laid out what would be the criteria to assess such a thing, and the very criteria that he suggested were ones where you have to in addition to looking at epidemiology you need to know something about constituent toxicity, you need to know something about bioassay data on cigarette smoking and you need to know something about the mechanism, and suggested these were the criteria that ought to be used, that no one single set of criteria should be used to the exclusion of others, that all of them weigh in, and to the extent that any one set of

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criteria or information or data is missing from any one that weakens the overall assessment to that degree. So -- And I think that that particular application of those criteria for that particular objective is appropriate, and that's what I'm talking about.

Q. Okay. I'm not sure that that you understood my question. Let me rephrase it a little bit differently.

This distinction between epidemiological proof and your phrase, quote, absolute scientific certainty closed quote, what I'm asking is is that distinction commonly used by other scientists?

A. I think scientists recognize that there are various levels of evidence or proof, depending upon what objective one is trying to achieve or what -- what the nature of the assessment is. I can't answer your question "is it commonly used," because I don't know what criteria are used in other disciplines, but I am aware that various criteria have been used and various definitions and assessment criteria have been applied to various matters in the health-effects area in general and to cigarette smoking matters specifically, including the surgeon general, and I've seen evidence of that through -- throughout the

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literature, the years of literature that I've been reviewing. It appears somewhat common to me.

Q. Well putting the issue of smoking and health aside, what other scientific issues make a distinction between epidemiological proof and, quote, absolute scientific certainty like you've made?

A. I'm not saying that they make a distinction between epidemiological proof and absolute scientific certainty. What I'm saying is that in general when someone is trying to assess something that -- unless -- unless the answer is absolutely known, which rarely it is, and in this case no one really knows what causes cancer or heart disease or emphysema but there's certain risk factors that have been identified and so they point to those, but no one really knows. And so since no one really, really knows, then you have to draw a judgment. The very act of drawing a judgment means you now have to develop assessment criteria and apply those criteria.

Now there's nothing out there that says there's only one way to develop assessment criteria, they must be developed in a particular way or anything like that, so that the task of going about and setting up what those assessment criteria are ones

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that are frequently unique to the situation and tailored to that situation. So it's not uncommon for scientists, or any discipline, for that matter, to draw up criteria and say, okay, this is what we're going to use to -- to, you know, achieve this hurdle, whether it be here or whether the hurdle be, for the record, let's say six inches above the table, or 12 inches above the table, or 18 inches, the hurdle can appear anywhere, depending upon what your objectives are. And if your hurdle is here, then you set criteria and you apply them and you say, okay, we're satisfied. If the hurdle is here, then you set up a different set of criteria and you apply them and you may or may not be satisfied. That's done all the time, and that's what I'm doing.

Q. Well sir, I guess what I'm trying to ask is a little bit different, and let me rephrase the question.

Can you point to a single other scientific question that makes the distinction between epidemiological proof and absolute scientific certainty that you've made with regard to the smoking-and-health issue?

A. As I said, the criteria that I'm using imply four things or involve four things; epidemiological

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evidence, evidence from constituent toxicology and considerations of that information, evidence from bioassay studies of cigarette smoke, whole cigarette smoke, and mechanism of action. The surgeon general himself in 1990 said these criteria ought to be applied to assessing whether or not reduced-tar cigarettes are safer. And he also said that not any one of these sources of evidence should dominate the assessment, and to the extent that information is missing on any one of these, that in itself reduces the confidence that one has and the certainty that one has -- that one has in making their assessment. So here's an example where the surgeon general himself has said epidemiology isn't the only thing, you've got to consider these other things. What -- Not when it comes to determining whether or not cigarettes are hazardous, but whether or not low-tar cigarettes are safer, which are two different assessments, and I agree with that, and the objectives are different.

Q. I'm going to move to strike as nonresponsive. I'm not sure you heard or listened to my question, so let me state it again.

Can you point to a single other scientific question, apart from the smoking-and-health issue,

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that makes the distinction between epidemiological proof and absolute scientific certainty that you've made with regard to the smoking-and-health issue?

MR. McGAAN: Object. Move to strike counsel's improper comments. The video record will show that the witness is carefully listening to your answers and trying to -- your questions, rather, and trying to answer them. It's really unfair to suggest on the record he's not listening to you, counsel.

A. Even in the course of this proceeding we've already seen several examples of it. Mr. Green himself here says our probabilistic concept of causality can't be demonstrated with epidemiology, and too, as he states it, but as far as an individual's concerned this probabilistic cause has no validity and it would be quite improper to apply predictability. So he's saying epidemiology is one thing but you need more if you want to have something that's not valid, apparently, from what he says.

The surgeon general's committee in the 1964 report said statistics cannot prove causality so they themselves are drawing a distinction between epidemiology only and other things.

Q. Well --

A. As I mentioned, the -- the distinction between

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the criteria that were applied to the matter in 1964 as opposed to the matter in 1990, two different things that were being assessed by the surgeon general. There is an example where a distinction was drawn between relying primarily on epidemiology, and epidemiology plus other things. So there are three things that I can think of as I sit here in the course of this proceeding, and I'm sure, given time, I could bring more to the table.

Q. Well sir, let me repeat my question again.

I'm not talking about the smoking-and-health controversy here. I'm saying, apart from that can you think of one single example of a scientific question where the distinction that you have made between epidemiological proof and absolute scientific certainty is -- has been made?

A. Yes.

Q. Which one?

A. Let's talk about whether or not antioxidants, for example, such as beta carotene, carotenoids in green leafy vegetables, prevent lung cancer. There has been a lot of epidemiological evidence that suggests that maybe there is a negative association, in this case, between consumptions of green leafy vegetables, including things like spinach and

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broccoli and carrots which contain beta carotenes and other carotenoids. There is a negative association between that and lung-cancer incidence, so much so that public-health authorities have said, well, people really ought to eat these antioxidants, they ought to get more of them in their diet, people have been going out and purchasing beta carotene and other antioxidant formulations, vitamin pills thinking that maybe they'll prevent lung cancer and other types of cancer, and the epidemiology was fairly consistent and still is fairly consistent on this matter, yet when clinical trials were actually conducted and people were given these materials over an extended period of time then followed up in prospective studies, that I'm sure you're familiar with, in fact it looked like maybe there wasn't a protective effect, maybe in fact people who got the high levels of antioxidants had even a higher incidence of lung cancer. There's clearly a distinction there between what the epidemiology seemed to show and what actual clinical evidence, other types of evidence seemed to imply. So there is a clear important distinction there.

In the area of something, let's say, like sodium and high blood pressure, does sodium in our diet

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contribute to high blood pressure. There is epidemiological evidence that suggests that it does, and then the question then again is, well, and then if it does, does high blood pressure cause heart disease, so ultimately does sodium cause heart disease? Now there is a link from the epidemiological evidence that, yeah, there's a link between sodium and high blood pressure and there's a link between high blood pressure and heart disease, so sodium may be linked to heart disease, maybe. But at the end of the day this issue is still being debated, and in fact recently statements have come out saying, well, we're not so sure if sodium was really all that bad after all and maybe the epidemiological evidence didn't tell us everything that we thought we needed to know in so far as making public-health recommendations are concerned.

There are many examples like that of relying on epidemiology only versus other. But the general concept, though, of having the -- the -- the hurdle of what's required to satisfy your own objectives that you're trying to achieve can be adjusted depending upon what the objectives are and what the needs are. That's not uncommon in any discipline. I imagine even legally it's not uncommon.

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Q. Well earlier in the deposition you talked about risk factors. Do you recall that, sir?
A. I remember discussing it at some point, yes.
Q. All right. How do you define "risk factor"?
A. I believe I already did that.
MR. McGAAN: He's answered before.
You have to do it again.
A. Okay. A risk factor is a factor, whether it be a life-style factor, a behavior, a dietary factor or some other thing that you're -- that's involved in your life that may be associated with the incidence of a particular disease, if this disease at the endpoint that you're trying to link it to, is associated at least in a statistical way.
Q. What do you mean by associated with in a statistical way?
A. Meaning that if you look at, let's say, a disease incidence, let's say you take a group of people who have a particular disease X and a group people who don't have it and say well let's ask them a bunch of questions about their lifestyle and exposures and ask these people, do you seem to see a particular preponderance of a particular lifestyle-factor association in the group that has the disease hi -- occurring in a higher incidence

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than that that doesn't.

Q. All right. Well can -- can you rate risk factors?

A. I don't know what you mean.

Q. Well are some things more risky than others?

A. Well you -- there's -- there's things that you can do that -- The way a risk factor is calculated typically is you have the incidence of disease in the so-called control population, one that presumably doesn't have exposure to the agent or the activity or lifestyle factor that you're studying, and you've got the disease incidence in that group, and let's say it's 10, doesn't matter what the units are. And then you can say, okay, now what's the incidence in the group that has the factor that are being -- that's suspected of being potentially linked to it, and let's say it's 20. And so you can just take the ratio, which would be 2, and that's called a relative risk if it's a prospective studies, it's an odds ratio if it's a retrospective study, and that is a measure of the strength of the association. All that tells you is how strong that association is, it doesn't tell you anything about necessarily likelihood of cause or -- or anything like that. But yeah, they can be -- you can look at the -- the size

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and magnitude of the relative risk, as well as whether or not that relative risk is statistically different than one, because just because it's a large relative risk doesn't mean it's statistically significant, and try to make an assessment of the strength of the association and the likelihood it's not due just to chance alone.

Q. All right. Well sir, have you looked at any of the risk assessments that have been done with regard to the strength of association between cigarette smoking and disease?

A. You mean the risk -- You mean the relative risks, the size of the relative risks?

Q. Yes, sir.

A. Yes, I have.

Q. And you would agree that overall there is a strong correlation between smoking and disease in these risks.

A. Depends upon the disease. They range all over the -- They range all over the board.

Q. All right. Well let me ask you this. You would agree that overall for the diseases that are studied, for every disease that is studied, the risk for smokers is higher than the risk for nonsmokers.

MR. McGAAN: Object, vague. Which disease?

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A. Well for some diseases that's true, for other diseases it's not true. And also the relative risks reported in studies conducted under some conditions tend to be high, but in studies under other conditions they may not be as high. But I mean it ranges across the board. But overall for something like lung cancer, yes, there is a fairly consistent association between, and a fairly strong association between smoking and lung cancer.

Q. All right. Sir, let's turn back to the surgeon general's report of 1989, Exhibit 4402. And turn back to that chart, that table 13 that we were looking at.

A. What page is that on again?

Q. Page 160.

MR. McGAAN: 160.

Q. And would you read to yourself the conclusions that are on the page that begin on page 161.

A. Okay. Under conclusions, the first conclusion --

Q. Read it to yourself, sir.

A. You want me to read all of them, all ten conclusions or --

Q. Yes.

A. Okay. Okay.

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Q. All right, sir. There are some conclusions that are listed here that the people who put together the 1989 surgeon general's report drew after looking at various scientific reports that had been published concerning cigarette smoking and various diseases; right?

A. Correct.

Q. Now point 6 discusses the concept of relative risk that we've been talking about; right?

A. Well I think many of them do, but 6 does too.

Q. All right. Well let's focus on 6 to begin with. And it says in CPS-II. First of all, "CPS-II" is what, sir?

A. Cancer Prevention Society study, the second one that was conducted, follow-up from the first one.

Q. And CPS-I is the first study that was conducted; right?

A. Correct.

Q. They were conducted by the American Cancer Society?

A. Well at least funded by. I think it was a multicenter study. I don't know exactly what the coordination and the structure was, but certainly they were involved in it.

Q. All right. CPS-I was conducted from 1959 to

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1965?
A. I forget the exact dates. I just know it was a way back.
Q. All right. And you understand the CPS-II was a follow-up study that went from 1982 to 1986?
A. That sounds consistent with my understanding. I don't remember the exact details.
Q. So the reference here in point 6 to CPS-II refers to the second of the American Cancer Society's funded studies; right?
A. Correct.
Q. It says there, In CPS-II, "The relative risks" for "death from cerebrovascular lesions were 3.7 and 4.8 for men and women smokers under the age of 65"; right?
A. Yes.
Q. And it goes on to say, "Increased risks of stroke were also observed among older smokers and former smokers"; right?
A. Yes.
Q. By the way, cerebrovascular lesions, that -- we're talking about risk of stroke here, aren't we?
A. Well I guess so. I didn't -- I didn't -- really understand that cerebrovascular lesions to mean stroke.

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Q. All right. Well nonetheless it goes on to say, along with the recently reported -- recently reported results of other studies, these findings strongly support a causal role for cigarette smoking in thromboembolic and hemorrhagic stroke; right?

A. That's what it says, correct.

Q. Now what they're saying here when they're talking about a relative risk of 3.7 and 4.8 for men and women smokers under the age of 65, they're not saying that the smokers' risk of death is 3.7 or 4.8 times that of a nonsmoker; isn't that right?

A. I'm sorry. Could you restate your question, please?

Q. All right. "Relative risk" doesn't mean -- I'm sorry, strike that.

The relative risk calculation does not equate to a percentage of increased risk, does it, sir?

A. My understanding is that it -- what it is is the ratio of disease observed in one population over disease observed in another population.

Q. In other words, men and women smokers under the age of 65 -- let's take men to begin with. Men under the age of 65 had a 3.7 increased relative risk over men in that same age group -- Strike that.

Men under the age of 65 who smoked had a 3.7

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increased relative risk over men in that same age group who did not smoke; right?

A. The relative risk is 3.7, which in my understanding means that when you look at the incidence, let's say per the age standardized incidence per unit of people, let's say a hundred thousand people, and you take the number of disease, incidence of disease that occurred in that population, it was 3.7 times larger than the same disease occurring in the nonsmoking population, however they define smoking and nonsmoking.

Q. Well sir, can you cal -- or make the cal -- do the calculation that would tell us what percent increase that relative risk calculated to?

A. Yeah, it would be 370 percent.

Q. You're sure about that.

A. I think so.

Q. So it's your testimony that smokers had a 370 percent increased risk over nonsmokers in the same category of having a stroke; is that right?

A. I wouldn't call it increased risk. What I would say is the incidence of occurrence of that particular disease that they're talking about was 3.7 times higher or 370 percent higher than the same disease occurrence in the population that was identified as

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the nonsmoking population.

Q. And sir, if we look at women who smoked in that same age category, under 65, versus women who did not smoke they had a 4.8 increased relative risk; right?

A. Correct.

Q. And you would calculate that as to what percentage, sir?

A. It would be 480 percent.

Q. And you're sure about that.

A. I believe so.

Q. Now you said that several of the other conclusions referenced relative risk; right?

A. Yes.

Q. Which are you referring to?

A. Well, let me go through and look. Maybe they didn't. Maybe I just read -- when I saw death rates. I may have misspoken. As I read through it now I don't see reference to relative risk in any points other than number 6.

Q. There are references, however, to death rates in the conclusions; right?

A. Yes.

Q. Now sir, one of the points that is made is at point 1 that lung cancer death rates increased two- to fourfold among older male smokers over the two

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decades between the CPS-I and CPS-II studies; right?

A. Correct.

Q. Another point that's made is that lung cancer death rates increased four- to sevenfold among female smokers age 45 years or older in CPS-II compared with CPS-I; right?

A. Where is that conclusion?

Q. Number 2.

A. Okay. Yes.

Q. And by the way, you would agree, sir, that in the years following 1964 the surgeon general concluded that lung cancer -- that cigarette smoking caused lung cancer in women smokers too.

A. Yes, yes. I believe he did.

Q. Now sir, point 3 notes that a two-decade interval witnessed a two- to threefold increase in death rates from chronic obstructive pulmonary disease in female smokers aged 55 years or older; right?

A. That's what it says, yes.

Q. And you would agree that in the years that followed 1964 the surgeon general concluded that in addition to men, that chronic obstructive pulmonary disease was caused by cigarette smoking in both male and female smokers.

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A. Yes.
Q. Now sir, there's some information given at point 7 about the percentage of lung cancer deaths which occurred in 1985 which were attributed to smoking; right?
A. Yes.
Q. And according to this report, in 1985 smoking accounted for 87 percent of lung cancer deaths; right?
A. Correct.
Q. And according to this report, in 1985 smoking accounted for 82 percent of deaths as a result of chronic obstructive pulmonary disease.
A. That's what it says.
Q. Now the next reference is to CHD. What is that?
A. I assume coronary heart disease.
Q. All right. And according to the conclusions in 1985, 21 percent of chronic --
A. Coronary.
Q. -- coronary or heart disease deaths were attributed to cigarette smoking; right?
A. Yes.
Q. And also, according to this report, smoking accounted for more than 40 percent of CHD deaths in men and women less than 65 years of age; right?

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A. Yes.
Q. Well sir, let me ask you this, how close are we, in your opinion, to determining whether smoking causes disease to a, quote, absolute scientific certainty?
A. I don't know how to state it. What do you mean in terms of "how close are we"?
Q. Well is there a lot of evidence that needs to be obtained, a little evidence, what kind of evidence do we need to obtain before you could conclude that smoking causes disease to a, quote, scientific certainty?
MR. McGAAN: Object. We went over that already. You can answer it again.
A. Depends upon what objective I have. If it's whether or not it's -- that the public ought to be warned about the possible health effects of smoking, I think there's sufficient evidence right now. If it's -- If someone says, as -- as the director of smoking and health, tell me what we've got to do to modify our product so that it won't have these associations, I don't have a clue at this point so I would say we're very far off.
Q. All right. Well let me ask you this, sir. Which is more dangerous, more likely to cause a

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person's death, smoking a cigarette or driving a car?

MR. McGAAN: Object, compound.

A. I don't know.

Q. Well if we look at table 13, it suggests here that the estimated risk of driving a -- or dying as a result of a motor vehicle accident is 187 per 1 million people in the population; right?

A. Yes.

Q. And according to this information that's given in table 13 of the 1989 surgeon general's report, the estimated risk of dying as a result of smoking is 7,000 per 1 million of the population; right?

MR. McGAAN: Object. Actually it's "exposed persons."

A. Yeah, and we talked about this before, and the point I would make here is that with motor vehicles you are absolutely certain of what was the causes of death, you've got a mangled-up car and a dead person in the car, there's no doubt. Most smokers don't get lung cancer, the vast majority don't get lung cancer. So if you have a smoker who ultimately dies, as everyone does, there is no way anyone can know what really caused their death because everyone dies. If a person is a victim of a violent car crash

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there's little doubt what caused their death, or if they're a victim of being shot, let's say, in a gang war or something like that there's little doubt what was the causative agent. With the act of smoking, no one really knows.

Q. Well sir, isn't it true that in order to come to these conclusions the people who were on this committee looked at number of deaths reported by physicians and what the physicians believed caused the death?

A. Well they --

MR. McGAAN: Let me object. You're talking about the report or this table? Just vague, I didn't know where you were going.

Q. In the surgeon general's report isn't it true that among the evidence that they looked at was the cause of death at least as attributed by the physician who filled out the death certificate?

A. I think --

MR. McGAAN: Object. That's vague.

You can answer.

A. I don't know because these -- these statistics are probably derived from many different epidemiological studies, all using varying methodologies to ascertain causes of death. In some

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cases it may have been based on just asking people's relatives what was the cause of death, it may have been based on a physician filling out a death certificate, it may have been based on a confirmed autopsy report. There's different levels of -- There's different methods and different procedures used in different types of studies, which ultimately lend -- it lends some indication of their quality, but in these particular studies that were used to make these estimated numbers of 7,000, I don't know. I assume some of them probably were.

Q. All right. But you -- you haven't read the studies that were used to form table 13; right?

A. I may have read some of them, but I haven't had enough time to review this document to read the explanation of where this number of 7,000 came from. I may have reviewed some of them. I doubt if I read all of them.

Q. All right. Sir, but this is a document which you relied on in your expert report for the opinions that you're giving here today; right?

A. In part.

MR. McGAAN: Object, argumentative. We've been over that about five times.

Q. Now sir, can you give me any other example of a

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scientific issue where both the epidemiology and the other evidence concluded that there was absolute certainty to establish a causal relationship?

A. What do you mean? For what -- Like what? Can you -- Do you have an example that we can talk about?

Q. Well that's what I'm asking you. Is there an example we can talk about?

A. There's examples of other substances which have evidence that satisfies more of the criteria than what we have here for smoking. Let's pick an example of a substance. And when I mention a substance you have to keep in mind it depends upon the context of exposure. It doesn't mean that if a substance is deemed to be, let's say, a human carcinogen it means that anyone who comes into contact in any context with that substance will get cancer. But, for example, let's say asbestos. There's epidemiological evidence linking that to human cancer, and the types of cancers that are associated with asbestos exposure, at least under occupational exposure, are replicated in laboratory animals and in other toxicity type tests. The mechanism of action, there's some theories, but in the end no one really knows. So that's a weakness in that particular type

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of criteria but the other criteria are more adequately satisfied.

Q. So just so we're clear here, you're saying -- Let me back up and start again.

Do you believe asbestos exposure causes cancer in human beings?

A. I think it can under some conditions of exposure.

Q. All right. And that is based on, amongst other things, epidemiological evidence; right?

A. Yes.

Q. It is also based on --

A. Animal.

Q. -- toxicological evidence?

A. Right, toxicological tests of what the effects of asbestos are.

Q. And toxicology --

A. And also -- I'm sorry.

Q. Wait a second.

Toxicology is the study of -- of animals; right?

A. Well not always animals. It's the study of the harmful effect of chemicals, and it -- animals could be used but sometimes things are tested in cells, in culture, in bacterial systems and a variety of other biological test systems.

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Q. Just so we're clear here, toxicology does not involve the study of -- of these agents on human beings.

A. Well it draws upon epidemiology as well. It looks at all sources of information that may be relevant to a determination of whether or not a substance may be harmful, so it includes -- it can include epidemiology in human -- and sometimes things are tested in humans not necessarily for cancer, but let's say for irritating effects or allergic-type reactions and things like that, skin irritations.

Q. All right. And when a toxicologist works to test agents in humans, if that toxicologist has a Ph.D. in toxicology he or she will work under the supervision of a medical doctor; right?

A. Not always. I assume if they're administering drugs and if it's -- the ethical review board of the particular institution in which they're doing the work, if they require whatever they're doing to be supervised by physicians then it would. I think it probably depends on what they're doing.

Q. Well sir, when you got out of -- or the year after you received your Ph.D., you worked for the U.S. Army?

A. Yes.

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Q. In the germ warfare area?
A. Sort of. In what we called chemical defense, which was studying the physiological effects of antidotes for chemical nerve agents.
Q. And when you did that you worked on human subjects, didn't you?
A. Yes.
Q. You worked under the direction of a physician, didn't you?
A. Yes, as I recall.
Q. And as a matter of fact there were certain things that you had to do in order to do this human -- these human experiments on human beings -- Strike that. That's a very bad question.
There were certain things that had to be obtained from the human subjects who were being experimented on; right?
A. You -- Do you mean physiological data or --
Q. Informed consent, sir.
A. -- physiological measurements?
Oh, okay. I believe so, but I wasn't involved in that end of it.
Q. And you would agree that when you were involved with the U.S. Army testing these agents on human beings, they had to give informed consent before they

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could be used as -- in these experiments; right?

MR. McGAAN: I object, lacks foundation. He just said he wasn't involved.

A. I don't have firsthand knowledge of that but I assume that was among the things that were -- that was being done. But I don't have direct knowledge of that. I wasn't involved in that aspect of the research.

Q. Well sir, you testified about that in your deposition down in Texas, didn't you?

A. Yes, but I think I said I didn't have firsthand knowledge but I assumed it was happening.

Q. And you understood -- or at least you believed that before these people were experimented on that they gave their consent to undergo this experiment; right?

MR. McGAAN: Object. He's answered.

A. I said I believe they did. I assumed that they did. I was not involved myself directly with obtaining consent in any way.

Q. All right. But getting back to our asbestos example, you said that you thought that there was toxicological testing which showed that asbestos can cause cancer in some human beings; right?

A. Not toxicological testing. What I said was that

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if you apply the range of criteria that I talked about you'll find more areas being satisfied to a stronger degree, or more sufficient degree, than with cigarette smoking.

Q. All right. Well just so we're clear here, you mentioned epidemiology and then you mentioned toxicology tests; right?

A. Well also that, plus inhalation bioassays of asbestos itself.

Q. What do you mean by "inhalation bioassays"?

A. Doing an actual long-term inhalation test of an asbestos aerosol in the air, exposing animals to that over the majority of their lifetime.

Q. Now sir, you would agree that there is a different lifetime that animals need to be exposed -- Strike that. That's very bad.

Different animals, for toxicological tests, have different lifetime definitions, don't they?

A. Well different animals have different life spans.

Q. All right. I -- And that's where I'm going. For example, the life span, or a life-span test of a rat is different than that for a dog; right?

A. Yes.

Q. All right. What is the life span of a rat?

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A. I know they can live as long as three years, but out of -- a lot of work has been done to try to determine what is the optimum amount of time to expose the animals. The goal is to expose them for as long as you can without them starting to die of natural death so that you still have some animals to evaluate, and through years of research it's been decided that two years is about the best amount of time to optimize both the objectives of exposing them as long as you can without having a lot of animals dying off of old age. So roughly the majority of the rat's lifetime is two years.

Q. All right. How about hamsters, what's the life-span test that's come to be toxicologically agreed upon as the --

A. I'm not as familiar with hamsters, but I assume it's similar to rats which would be anywhere from 18 to 24 months.

Q. Are mice the same?

A. Yes.

Q. Now dogs are different; right?

A. Yes, they live longer.

Q. Dogs the -- it is agreed the average toxicological life-span test for a dog is five years; right?

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A. I was thinking seven. Probably five to seven.
Q. Okay. How about monkeys?
A. Don't know if there are many standard protocol because monkeys aren't used -- When you get into monkeys it becomes more of an experimental research mode rather than, you know, standard routine toxicological assessment. Monkeys I would think that it depends upon the type of monkey, but I would think that such tests might go for 8, 8 to 10 years, maybe 12 years, and again depending upon what species you're talking about.
Q. All right. Well now correct me if I'm wrong here, going back to our asbestos model, do you agree that there has been no mechanism shown for how asbestos causes cancer in human beings?
A. I think that there have been several hypothesis advanced and there's a couple of theories and some supporting evidence but at the end no one really knows the mechanism.
Q. Can you pull out that attorney general's [sic] report from 1964, sir, that we were looking at earlier?
A. The surgeon general's report?
Q. Yes.
MR. McGAAN: You must be thinking about

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Bill Clinton. We're talking about the surgeon general.

MS. WIVELL: You know, maybe it's time for me to take a break.

(Discussion off the stenographic record.)

THE REPORTER: Off the record, please.

(Recess taken from 2:59 to 3:15 p.m.)

BY MS. WIVELL:

Q. All right, sir. I have during the break asked you to turn to Exhibit 314; right?

A. Yes.

Q. Would you turn to the second-to-the-last page. There the author summarizes his conclusions concerning cigarette smoking and whether it causes disease; right?

A. Well let me -- let me read the paragraph.

Yes, well, it says "in summary" so it appears to be his summary of the -- the issue he's discussing here.

Q. It says there, "In summary, for social policy purposes it is sensible and totally relevant to use the experimental evidence pertaining to large groups and also to select the simplest hypothesis. It may therefore be concluded that for certain groups of people smoking causes the incidence of certain

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diseases to be higher than it would otherwise be"; right?

A. That's what it says, correct.

Q. All right. Now sir, let me ask you this, do you agree that based on the evidence we have to date it can be concluded that for certain groups of people smoking causes the incidence of certain diseases to be higher than it would otherwise be?

A. I think I agree with his first statement here, which is "for social policy purposes," such as making health warnings and so forth, it's sensible to rely on the experimental evidence and to select the simplest hypothesis.

Q. All right. Well --

A. That doesn't mean that is the -- that is the -- what's known out there ultimately, but to select the simplest explanation and -- and state that explanation in very emphatic terms, which is what health warnings are.

Q. Well sir, I think my question was a little bit different than that. I asked you if you believed that it could be concluded that for certain groups of people smoking causes the incidence of certain diseases to be higher than it would otherwise be. Do you agree with that, sir?

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A. Not with a great deal of certainty.
Q. Well, I'm sorry. When you say "not with a great deal of certainty," are you saying you can't agree with that with a great deal of certainty?
A. I'm saying you've got an association there. You don't know what's driving that association. It may very well be smoking, it may be other things that are associated with cigarette smoking or cigarette smoking lifestyle, we don't know that. The vast majority of these studies that were conducted didn't take into account other confounding factors like dietary fat, dietary alcohol, whether people consumed vegetables and so forth which are now known to be important factors. So we know the association is there, we don't know exactly what's driving it. Cigarette smoking may be a contributor, it may be the sole cause of the association, we simply don't know.
Q. Well sir, would you agree with the statement that smoking is associated with various diseases and the simplest explanation is direct causal?
A. I don't know about the simplest explanation, but that's a possible explanation.
Q. Well sir, you understand that Dr. Green has made that statement in a document you read; right?
A. I don't know if -- I don't remember reading

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that, but he says here -- all I -- he says here that's the simplest hypothesis, and he also goes on to say that there's no way of knowing, no conclusions can be drawn from epidemiological studies with respect to any particular individual.

Q. With regard to a particular individual; right?

A. Yes, and if --

MR. McGAAN: Object, it says -- That's not what it says. You misread the document.

A. Well the sentence I think I'm referring to is, "But no valid conclusions may be drawn from the epidemiological studies with respect to any particular individual."

Q. All right. That's what he says; right?

A. And then he goes on to say, "In this case, at present, there is no way of knowing or of calculating the probability, whether smoking will cause disease in any specific individual or whether by giving up smoking he will avoid disease."

Q. Now sir, you know that Dr. Green went on to change his opinion and conclude that smoking does cause disease; right?

A. I don't know that.

MR. McGAAN: Object. Object to the form.

A. No.

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Q. Have you ever seen the transcript of his appearance on the British broadcasting system?
A. No.
Q. Has anyone ever shared with you the views he expressed when he went on the BBC?
A. I've heard it mentioned, but I haven't seen the transcript.
Q. Sir, showing you what's been marked previously as Plaintiffs' Exhibit 512, this is a copy of the transcript of a program that appeared on "Panorama" in 1980 entitled "A DYING INDUSTRY"; right?
A. Umm-hmm.
Q. You have to answer out loud.
A. I'm sorry. Yes.
Q. If you -- For the record, Exhibit 512 begins with the Bates number 301140234; right?
A. Right.
Q. Now I believe that the portion of the transcript where Dr. Green appears on the program are found at the page that ends with Bates number 237, 238, 239. Would you take a few moments and review those, please.
A. The pages 237, 238 and 239?
Q. I think there's also a little bit where he's quoted on 241 also.

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A. Okay. But you want me to read those three pages for now.
Q. Yeah.
A. Okay. I finished through 239. You said I also should look at 241?
Q. Yes, sir. Why don't you read 240 and 241.
A. 240 and 241?
Q. Yes, sir.
A. Okay.
Q. All right, sir, you've had the opportunity to read the portions of Exhibit 512 that I referred you to; right?
A. Yes.
Q. Now the -- there are several references to a -- to quotes by Dr. S. J. Green; right?
A. Yes.
Q. And you understand that that's the same Dr. Green we've been talking about earlier?
A. I assume so.
Q. Now Dr. Green is dead, isn't he?
A. I don't know.
Q. Now there's a reference at the top of page 3 to Alan Long from Souza Cruz; right?
A. Yes.
Q. Now Souza Cruz is a sister company of Brown &

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Williamson; isn't it?

A. Yes.

Q. It is the B.A.T. Industries Brazilian subsidiary, isn't it?

A. Yes.

Q. And it says here Alan Long --

By the way, sir, have you seen the tape of this broadcast?

A. No.

Q. It says here, Alan Long of Souza Cruz says, "The medical evidence, as far as I am aware, is of a statistical nature and it is, as you know, the industry's view that no evidence has been produced to establish a causal relationship between smoking and any of the diseases with which it has been associated"; right?

A. Yes.

Q. And sir, that's essentially the same position that was stated in the Frank Statement to cigarette smokers from 1954; right?

A. I don't think it is the same.

Q. Well it says in the Frank Statement there is no proof that cigarette smoking is one of the causes; right?

MR. McGAAN: Let me object until the

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witness can have it in front of him here to answer the question.

Q. You now have the Frank Statement to Cigarette Smokers in front of you, sir?

A. Yes.

Q. And isn't it true that the Frank Statement says,"...we feel it is in the public interest to call attention to the fact that eminent doctors and research scientists have publicly questioned the claimed significance of these experiments," and then goes on to say, "Distinguished authorities point out:" "That there is no proof that cigarette smoking is one of the causes," referring to causes of lung cancer; right?

A. I'm sorry, where -- I can't pick out on here where that -- where you're reading from.

Q. All right. I'm reading from the points 1, 2, 3 on the left-hand column.

A. Umm-hmm.

Q. There it says, sir, doesn't it, "At the same time, we feel it is in the public interest to call attention to the fact that eminent doctors and research scientists have publicly questioned the claimed significance of these experiments," and then it goes on to say, "There's no proof that cigarette

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smoking is one of the causes." Right?
A. Yes.
Q. And it says after that, "Distinguished authorities point out...that statistics purporting to link cigarette smoking with disease could apply with equal force to any one of many other aspects of modern life. Indeed the validity of the statistics themselves is questioned by numerous scientists."
A. Yes.
Q. All right. And essentially that's the same thing that Alan Long was saying here is --
A. It's similar, yes.
Q. All right. Then Dr. Green commented on the statistical evidence, didn't he?
A. Yes.
Q. And he says, "I think this is a very naive view and quite simply I believe that just to say evidence is statistical and can't prove anything is a nonsense. I think that nearly all evidence these days is statistical. I believe that experiments can be carried out and have been carried out, and I think that in a nutshell what we can show is that smoking is a very serious causal factor as far as the smoking population is concerned." Right?
A. That's what it says, yes.

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Q. And it goes on to note that whoever P. T. is commented that Green wasn't just another antismoking crusader, but was an eminent scientist who for 20 years directed research in the tobacco industry; right?

A. That's what it says, yes.

Q. And it notes that last -- the September before this broadcast he had retired from the board of British-American Tobacco; right?

A. That's what it says, yes.

Q. Now Dr. Green went on in this broadcast to say, "...do I believe that smoking can cause harm I'm quite sure it can and does"; right?

A. Where does it say that?

Q. Can you turn to page 238?

A. Okay. And where?

Q. Under where it says "Dr. G," and it starts out, "Well, as I've said."

A. Well, yeah, the part you quoted is a part of the sentence, it's not the whole sentence.

Q. He says, "Well, as I've said, most smokers can smoke all their lives without any apparent harm, but if you say do I believe that smoking can cause harm I'm sure it can and does"; right?

A. That's what it says.

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Q. And he goes on to say, "In fact, I'm quite sure it's a major factor in lung cancer in our society. For example, and perhaps I can express it better by saying this, in my opinion if we could get a decrease in the prevalence of smoking we" could "get a decrease in the incidence of lung cancer"; right?

A. That's what it says, correct.

Q. And that is a change from the opinion that you noted earlier where he said that there was no relationship between the amount of smoking and the incidence of lung cancer; right?

A. It's not clear --

MR. McGAAN: Objection, that mischaracterizes it.

Go ahead and answer.

A. It's not clear to me that it really is a change. He says he acknowledges the statistical evidence and I believe would acknowledge it's a risk factor, and here he says that it is a major factor in lung cancer. I don't know what he means by "factor," maybe risk factor. He says here he thinks that smoking can cause harm and is quite sure that it does, but yet before he says people smoke all their lives without any apparent harm, or most smokers. Before he does say that there's no way to demonstrate

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based on statistics in any individual, and here he doesn't seem to be saying that. He seems to have shifted somewhat in his view, and perhaps he did.

Q. Now sir, this document also goes on to talk about an experiment or experiments that were done by a Dontenville in Germany.

A. Yes.

Q. All right. You have read those experiments; right?

A. I've read some of them.

Q. You have read the published experiments that Professor Dontenville published in the scientific literature?

A. Yes.

Q. Now the nature of the experiments that he did was to expose Syrian golden hamsters to cigarette smoke; right?

A. Yes.

Q. And what were his published results?

A. I can't recite all of them. I mean the major finding that I think you're probably referring to is -- Well, he looked at a number of things. He did complete histopathology on the animals, exposed them to, a majority of their lifetime to very high levels of cigarette smoke, much higher than what people

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would get. He didn't find any evidence of cardiovascular disease from what I recall, he didn't find any evidence of emphysema or chronic obstructive pulmonary disease. I do not believe he found any evidence of lung cancer, what he did find is a higher incidence of laryngeal cancer compared to controls.

Q. And how long did these animal studies go on, sir?

A. I don't remember the exact period of time. For some reason I'm thinking 18 months, it may have been longer, maybe up to 24 months. I'd have to go back and review the studies to refresh my memory.

Q. And sir, but just so we're clear here, he did find in his animal studies that he published that there were laryngeal tumors that resulted as a result of this exposure to cigarette smoke.

A. Yes, to some -- to summarize what I mentioned, he did not find evidence of heart disease, of chronic obstructive pulmonary disease, he found no evidence of emphysema, no evidence of lung cancer, but he did find an increased incidence of laryngeal tumors in the animals under the conditions of his test protocol.

Q. Those were cancerous tumors, weren't they, sir?

A. I believe so, yes.

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Q. Now sir, you would agree that that is evidence of inhalation bioassay that cigarette smoking -- or that cigarette exposure caused those tumors.

A. That's evidence. The problem why the evidence is not as supportive as -- as I would like to see it is that, number one, that is a finding that had not been observed in other animal studies so it seemed to be peculiar to his particular strain of animals, in fact other hamster studies have been done using other strains of hamsters where I don't believe that a cancer-related effect was attributed to exposure to smoking. In fact in one study I'm thinking of the smoke-exposed group actually survived longer, they actually lived longer than the nonexposed groups. So it's not a consistent finding, and it may be something that's peculiar to the particular strain of hamsters that he was using. In fact when you review the whole inhalation research in this area you do tend to see unusual strains of animals sometimes being used in an experimental way to test these things. The -- The finding also raised other issues, as I said, it did not support an indication that cigarette smoke under these extreme conditions lead to heart disease, to lung cancer, chronic obstructive pulmonary disease or emphysema.

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Q. Now this document, Exhibit 512, talks about why Dontenville didn't follow up on his studies, doesn't it?

MR. McGAAN: Object, mischaracterizes -- mischaracterizes what's happening in this document.

A. The document does talk about Dontenville, whether it's true or not I don't -- I don't know, but it does describe this.

Q. All right. Well whether it's true or not, what's reported here in Exhibit 512 is that after Dontenville reported his findings of laryngeal cancerous tumors in his Syrian golden hamsters, his institute was closed down; right?

MR. McGAAN: Object --

A. Could you please refer to me -- I'm sorry.

MR. McGAAN: I'm sorry. Objection, mischaracterizes.

A. Could you please refer to me the page and passage where you're reading?

Q. Well I'm looking at page -- the page that ends with Bates number 240 where it says, "Yes, it was for us like a flash of lightning out of the sky" that "we were told about the closure of the institute."

A. Yes, you read that correctly.

Q. All right. And you understand that after

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Dontenville reported to the cigarette industry that he had made these findings in these hamsters, his institute was closed down; right?

A. I don't have an understanding of that from any experience or direct knowledge. This is before my time.

Q. All right. Well whether it's true or not, that is what is reported here in Exhibit 512; right?

MR. McGAAN: Object, mischaracterizes what the document is doing.

A. I'm not sure I remember reading that. Could you please refer me to the passage that says that?

Q. Well it says he had a team of scientists under Professor Dontenville, conducted a series --

A. I'm sorry, can you tell me exactly where you are? I don't see where you are.

Q. All right. Page 239.

A. 239. Okay. On what, last paragraph?

Q. It says "Part 2."

A. Right. "The industry does."

Q. "...spend millions on research today but the industry funds others to carry out the research it once did itself. One of the industry's most famous research institutes was financed by the Verband in Hamburg"; right?

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A. Right.
Q. What's the Verband?
A. Verband, my understanding, I don't have any direct experience with them but my understanding is that they're a trade association that represents the German tobacco industry.
Q. All right. And it said, "Here a team of scientists under Professor Dontenville conducted a series of important animal experiments to study the effects of the inhalation of cigarette smoke on mice and on hamsters"; right?
A. That's what it says, yes.
Q. Okay. Then it goes on to talk about some other work that was done on pigs; right?
A. Yes.
Q. And then it says, "Suddenly in June 1975 the Verband closed the institute..." --
A. Okay. You just jumped ahead on me. Where are you? Okay. I see.
Q. It says, "Suddenly in June 1975 the Verband closed the institute and rented it to the state health authority for one deutsch mark a year"; right?
A. Yes.
Q. And it says, "Today the labs still stand empty."
A. Yes, it says that.

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Q. And it goes on to talk about whether the institute lacked resources or whether Professor Dontenville was ill; right?

A. Yes.

Q. And one scientist is quoted as saying "It is certainly not right to say there was a shortage of money. In the institute we always had the best of everything we needed. We had a budget of between 6 and 8 million marks a year"; right?

A. Yes.

Q. And then there was -- a question is asked of that same scientist, "Was Dontenville ill"; right?

A. Yes, it says -- it has that question, yes.

Q. All right. And the answer that's given here, right or wrong, is "...no. He was in good health and once when we talked about the official announcement he said to us 'it says here that I'm ill. Well look at me, how sick'" am I, "and he was very healthy"; right?

A. That's what the document says.

Q. It goes on to say "He was being sarcastic."

A. Yes.

Q. Now sir, isn't it a fact that the tobacco trade association that funded Dontenville's work closed him down when they received the reports of the fact that

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he had indeed induced laryngeal cancerous tumors in Syrian golden hamsters?

MR. McGAAN: Object. You've already established that that question lacks foundation.

A. I don't -- I don't recall reading that in here and I don't know how I can tell that from this document.

Q. Well turning back to the issue of Dr. Green, you have read other documents which Dr. Green wrote where he addressed the issue of cigarette smoking and whether it caused disease; right?

A. I've read some documents prepared by Dr. Green that covered those issues, yes.

Q. And sir, you know that he came to the conclusion that cigarette smoking was associated with various disease and the simplest explanation was that it was a direct cause.

A. Is that what he says in this document? Is that -- I don't remember reading that in this document.

Q. Well sir, I'm not asking you about this document. You have read other documents where he has addressed that issue; right?

A. I don't remember -- I've read lots of documents where he addresses a lot of smoking-and-health issues. I don't remember that particular statement.

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Q. Sir, showing you what's previously been marked as Plaintiffs' Exhibit 501, this is a memo written by S. J. Green to Patrick Sheehy and P. L. Short; right?
A. Yes. I'm just trying to locate the date on this.
Q. Well if we turn down to the bottom of the first page we see that it was written May 17th, 1976; right?
A. Yes, that is the date. I'm also trying to find the date on this one here, Plaintiffs' Exhibit 314.
Q. Well sir, can you turn your attention to Plaintiffs' Exhibit 501, please?
A. Let me see, this is 501. I don't see where it says "501" on it.
Q. All right. Well I'm going to represent to you that it's been marked previously as Exhibit 501.
A. Okay.

MR. McGAAN: Your question, though, about Exhibit 314, --

THE WITNESS: Right.

MR. McGAAN: -- there's no date that appears on it as far as I can see.

THE WITNESS: Okay.

Q. Sir, Exhibit 501 begins with the Bates number 110076427; right?

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A. Right.

(Interruption by the reporter.)

Q. And you've seen this document before, haven't you?

A. I don't know if I've seen this one.

Q. All right.

A. Let me just take a look at it.

Q. Fine. Why don't you do that, sir.

A. Okay. I don't think I've seen this one. At least I don't recall if I have.

Q. All right. Just so we're clear here, when you say "this one" you're referring to Exhibit 501.

A. I believe so but it's not marked, but yes.

Q. All right. Now sir, mister or Dr. Green was commenting on a paper when he wrote this memo, wasn't he?

A. It appears so.

Q. And if we turn to page 3 we see his comment "Smoking is associated with various diseases and the simplest explanation is direct causal"; correct?

A. Where on page 3?

Q. Where it says --

A. Oh, yeah. Oh, no.

Q. Page 3.

MR. McGAAN: You mean page 2 at the top?

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A. Page 2 at the top?
Q. The third page of the exhibit has a heading that says "Page 3"; right?
A. Oh, okay.
Q. And there Dr. Green says, "Smoking is associated with various diseases and the simplest explanation is direct causal"; right?
A. Yes.
Q. Sir, let me ask you this, do you agree with Dr. Green's statement that smoking is associated with various diseases and the simplest explanation is direct causal?
A. I would say that probably is the simplest explanation. I don't know if that's the explanation, but it certainly is the simplest one.
Q. He goes on here to say "Certainly - on the evidence - governments would be failing in their duty if they did not act"; right?
A. That's what the document says, correct.
Q. All right. Now sir, let me ask you this. Isn't it true that the position that you're taking today with regard to whether cigarette smoking causes disease is dominated by the legal considerations that your company faces and has faced in lawsuits over the last 40 years?

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MR. McGAAN: Object, argumentative.

A. I don't believe it is.

Q. Well sir, isn't it true that lawsuits that have been filed and pending against Brown & Williamson almost continuously since 1954 actually drive what you say here today in giving us your opinions on whether smoking is causally related to disease?

MR. McGAAN: Object.

A. No.

MR. McGAAN: Asked and answered.

A. What's driving my testimony is the -- my perceived need to be scientifically precise and exact and clear and not jump to the simplest explanation, although if you asked for the simplest explanation, I can give one, but if you say what's really happening, I can give you my opinion on that as well.

Q. Well sir, isn't your demand that smoking be proved to a scientific certainty no more than another way that the industry is demanding scientific proof where that kind of proof is never really required as a basis for action by doctors, for example?

A. It depends upon what --

MR. McGAAN: Object. Let me just object. The question's argumentative and unintelligible, but you can answer if you understand.

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A. Again, consistent with my answer, which I believe is the most scientifically valid and honest answer, it depends on what your objectives are. If your objective is to say is there enough evidence to warn the public, yes. If I -- If on the other hand I say, well, let's say R&D has figured out a way to reduce the levels of nitrosamines in cigarettes by 30 percent so we're going to go ahead and put a brand out there and say this is a safe cigarette or a safer cigarette, I don't believe that anyone would believe that -- that scientific evidence has been determined to a sufficient scientific degree to sustain such a warning and there --

Q. Well let me --

A. -- we would have a very rigorous -- I would think that we would be held to a very rigorous examination of what evidence we would need to generate to substantiate such a health claim, and that's the type of evidence that I'm referring to.

Q. All right. Sir, do you know what a differential diagnosis is?

A. No.

Q. Do you understand that a differential diagnosis is something a doctor makes?

A. I don't know what a differential diagnosis is so

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I don't know if it's something a doctor makes. Perhaps you can enlighten me.

Q. All right. Well let me ask it this way. Sir, you've -- Let me think of an example.

Do you have children?

A. (Nodding.) Yes.

Q. Have your children ever had chicken pox?

A. One has.

Q. All right. Now when --

Did you take your child to the doctor or did your wife take your child to the doctor when your child had chicken pox?

A. It was awhile ago, but I'm pretty sure we did. I don't remember exactly, but I believe we did.

Q. All right. And do you understand that the doctor looked at your child and examined your child?

A. I assume that the doctor did.

Q. And did the doctor --

A. I didn't actually -- I wasn't there, I think my wife did it but --

Q. Okay. But do you understand that the doctor then made a diagnosis of chicken pox?

A. I assume he did.

Q. All right. Well did -- when you got home from work did your wife tell you, oh look, our son or

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daughter has chicken pox?

A. Yes.

Q. All right. Well do you know did the doctor go through this analysis of whether there was epidemiological evidence or toxicological evidence or bioassay evidence or mechanism-cause evidence in coming to that conclusion about whether your child had chicken pox?

A. Probably not. Chicken pox is a very different type of disease than those associated with smoking.

Q. And sir, are you aware that a physician will try and determine what is the most probable cause of something in making his or her diagnosis?

A. I assume that they have to do that if they -- when they don't know, if they're in doubt, that they have to make a call if they're required to by their standards of practice or by legal considerations.

Q. Do you know if, when your child was diagnosed with chicken pox, the doctor did a biological assay of what was coming out of the pockmarks to determine whether the child had chicken pox?

A. I don't know if he did or not. I'm not -- I really don't know what his examination procedure and assessment criteria were.

Q. Okay. Fair enough.

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But do you know if the doctor demanded scientific certainty before he or she made the diagnosis of chicken pox?

A. I don't know.

Q. Well sir, let me go back to the question of your opinions here today.

Isn't it true that what you're expressing here today is just another way that the industry is trying to get out of admitting that cigarette smoking causes disease?

MR. McGAAN: Object, argumentative.

A. I don't believe so. I think what I'm doing is looking at the issue from various sides. I don't believe there's an absolute answer that's known out there in the universe. I believe that how one views this depends very much from the position that they're in and the objectives they're trying to achieve when they assess the situation, and I acknowledge that this is not an exact science, that there is no absolute, it's a relative thing, and it depends upon relative to where -- where you are and where -- where you need to go and what you're trying to achieve and what the -- what the hurdle is and how high the hurdle is or how low the hurdle is for passing judgment.

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Q. Well sir, isn't it true that the tobacco industry has tried to avoid liability by raising the hurdle so high that it will never be gotten over?
A. I think that's a legal question, and I don't know if I can respond to that.
Q. Well let me put it a little bit differently. Showing you what's been marked as -- Whoops.
Showing you what's been marked previously as Plaintiffs' Exhibit 443, this is another SJG document, isn't it?
A. Yes.
Q. All right.
A. It's undated. Oh, no, it's not. 1976.
MS. WIVELL: Can we take a break, please?
MR. McGAAN: Yeah. How long do you want?
(Discussion off the stenographic record.)
(Recess taken from 4:02 to 4:13 p.m.)
BY MS. WIVELL:
Q. All right, sir. Why don't you take a few moments and read Exhibit 443.
(Discussion off the stenographic record.)
A. Okay. Yeah, this is one -- We've already talked about this one, haven't we?
Q. Well actually, sir, we have not talked about this one yet.

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A. We haven't?
Q. Exhibit 443 is Bates numbered 109938433; right?
A. Okay.
Q. Right?
A. Yes.
Q. All right. Now this is similar to a document we've seen before, isn't it?
A. It sure is. In fact I thought we already looked at this one.
Q. All right. This one, however, has the signature S. J. Green on the fourth page; right?
A. If that's what that squiggle is, yes.
Q. All right. Now this document starts out with the statement, the public position of tobacco companies with respect to causal explanations of the association of cigarette smoking and disease is dominated by legal considerations; right?
A. That's what it says, yes.
Q. And sir, isn't it true that the public position that Brown & Williamson has taken with regard to whether cigarette smoking causes disease is dominated by legal considerations?
A. I don't know if it is because I'm not involved in the legal considerations which you're referring to. I'm giving my opinion as I see the science.

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Q. Well sir, you're also testifying here as Brown & Williamson's spokesperson who is designated to testify in a Rule 30.02(f) deposition; right?

MR. McGAAN: Object. To be precise, he's been designated to testify regarding the health effects. There's a different witness designated on the issue to which you're referring.

Q. Let me rephrase the question.

You're designated here to testify as Brown & Williamson's spokesperson on health effects of smoking; right?

A. That's my understanding.

Q. Now sir, this document goes on to say, "By repudiation of a causal role for cigarette smoking in general they hope to avoid liability in particular cases. This domination by legal consideration thus leads the industry into a public rejection in total of any causal relationship between smoking and disease and puts the industry in a peculiar position with respect to product safety discussions, product evaluations, collaborative studies" and so forth; right?

A. That's what the document says, correct.

Q. And the author goes on to say the "Companies are actively seeking to make products acceptable and

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safer while denying strenuously the need to do so"; right?

A. That's what the document says. That's correct.

Q. And it goes on to say, "The problem of causality has been inflated to enormous proportions. The industry has retreated behind impossible demands for 'scientific proof' whereas such proof has never been required as a basis for action in the legal and political fields"; right?

A. That's what the document says, correct.

Q. Well sir, isn't your statement about the fact that there is no scientif -- absolute scientific certainty as to whether cigarette smoking causes disease just another example of the industry's demand for impossible levels of proof which are never required by scientists or medical doctors in order to act?

MR. McGAAN: Object, that mischaracterizes what this document says.

A. I don't believe it is. The -- As I indicated, where you come out on causation depends on what the objection -- what the objectives are and what the criteria for assessment are, and I acknowledged that if the objectives are one for making a public-health assessment for setting public-health policy and if

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the evidence relied upon or the assessment criteria are primarily epidemiological then one would conclude that cigarette smoking causes disease and those objectives could be met.

On the other hand, the demands that I'm talk -- that you're referring to, which I don't believe are demands, but the criteria that I'm referring to are ones that are placed upon us and that are placed upon the entire scientific community. If, for example, I wanted to modify my cigarette so that it had reduced activity in an Ames test and make a claim, this is a safer cigarette, I don't believe that the scientific community would accept less-stringent standards of scientific evidence than what I described.

Q. Well sir, isn't it true that what you say today is governed by company policy on smoking and health?

A. No.

MR. McGAAN: Object. Object, vague, mischaracterizes prior testimony about his -- his testimony on this issue.

A. What I'm saying today is my assessment of the state of the scientific situation as it applies to cigarette smoking.

Q. Well sir, let me show you what's previously been marked as Exhibit 317 in this litigation. Exhibit

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317 begins with the Bates number 620789910; right?
A. Correct.
Q. And this is a letter dated March 26, 1984 to all operating company -- I'm sorry -- to all operating group chairman and liaison directors on B.A.T. Industries stationery; right?
A. Correct.
Q. Now B.A.T. Industries is the ultimate parent company of Brown & Williamson, isn't it, sir?
A. I believe it is but I'm not familiar with exact organizational relationships between Brown & Williamson and the total big structure out there so --

MR. McGAAN: Do you have another copy of that one or should I look over his shoulder?

MS. WIVELL: Why don't you look over his shoulder, Andy, I'm sorry.

MR. McGAAN: No, that's all right.

Q. This document is entitled "LEGAL CONSIDERATIONS IN SMOKING & HEALTH ISSUES"; right?
A. Yes.
Q. Why don't you take a moment and review it.
A. Okay. Okay.
Q. Sir, you were aware of the smoking-and-health policy that's referred to on the second page before I

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showed you this document, weren't you?
A. What smoking-and-health policy?
Q. Well you -- you are -- you were aware of B.A.T.'s stance on smoking and health before I showed you this document today; right?
A. I'm familiar with -- with Brown & Williamson's position, I have had no direct exposure to, as far as I know, to B.A.T.'s industry position on smoking and health.
Q. Well sir, Brown & Williamson's position is the same as B.A.T. Industries, as articulated here, isn't it?
A. It's similar. I don't know if I would say it's the same.
Q. But the gist is that the group's position is that causation has not been proved. That is the same as Brown & Williamson's policy; isn't it?
A. I think what I said is that where one -- the conclusion one makes depends upon what sort of assessment criteria they're using and what the objectives of their assessment are. That's somewhat different than what it says here.
Q. All right. Well this document is two pages, the first of which is a memo that went out to the chief executive officers and directors of all of B.A.T.

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Industries' operating companies; right?
A. It appears so, yes.
Q. And it says that the reason it was being sent is so that all members of the group be constantly aware of B.A.T.'s stance on smoking and health; right?
A. Can you please direct -- I can't find, on the page, where you're reading from.
Q. All right. The first paragraph, it says, "Recent changes in the law in some states in the U.S.A. have resulted in a fresh spade of litigation against the tobacco industry there"; right?
A. That's what it says.
Q. And it goes on to say, "For this reason it is most important that other members of the group are constantly aware of B.A.T.'s stance on smoking and health."
A. That's what it says.
Q. Now let me ask you this, sir. Have you, while you were an employee of Brown & Williamson, been aware of B.A.T.'s stance on smoking and health?
MR. McGAAN: Object, asked and answered.
A. I did answer the question. I said that I know -- I'm familiar with Brown & Williamson's policy, I don't believe I've had any direct exposure to B.A.T. Industries' policy or position on smoking and health.

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Q. This document goes on to say on the first page, "I should be grateful if you would ensure the widest possible circulation in your Operating Group of the Group policy on Smoking & Health Issues as summarized in the attached note"; right?

A. That's what it says, correct.

Q. Well sir, did you receive a policy book when you joined Brown & Williamson?

A. No.

Q. Nobody gave you any booklet that included what the parent companies' issue -- or stance on smoking and health was; is that right?

A. No.

Q. Well sir, you would agree that B.A.T.'s stance is articulated in the second page of Exhibit 317; right?

A. Let me look through it again. The second paragraph?

Q. Well sir, doesn't the first paragraph start by saying "This note summarizes the policy of the BAT Industries Group in relation to smoking & health issues"?

A. Yes, it does.

Q. All right. And it goes on to say, in the second paragraph, that the policy is that "No conclusive

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scientific evidence has been advanced and the statistical association does not amount to proof of cause and effect"; right?

A. It says that, but it also says that it's "essential that statements about cigarette smoking or on smoking and health issue generally must be factual and scientifically correct."

Q. I know, and I -- we're going to get to that, sir, but let's focus back on what I was talking about for a moment.

It says there that "No conclusive scientific evidence has been advanced and the statistical association does not amount to proof of cause and effect. Thus a genuine scientific controversy exists"; right?

A. That's what it says, yes.

Q. Okay. Now sir, that's essentially the position that you've been espousing here today, isn't it?

A. I don't believe so. I think it's similar. I don't think it's exactly what I've been saying, but I think this may be an attempt to summarize it in a simple, concise statement.

Q. All right. Well do you agree with that statement that I just read?

A. I wouldn't state the statement like this. What

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I would say is what I've been saying for several hours now, and I'll say it again.

Q. Well, that's okay. Like you said, you've said it before. But you would -- Strike that.

Now sir, you referred a little bit earlier to the first part of that paragraph.

A. Correct.

Q. It says there, "For this reason it is essential that statements about cigarette smoking or the smoking and health issue generally must be factually and scientifically correct"; right?

A. That's correct.

Q. Why is it important that the statements which the B.A.T. group companies make be factual?

MR. McGAAN: Calls for speculation if you're asking him to interpret B.A.T. Industries' motives here.

A. Because if someone draws a conclusion in a glib way, or in casual way, in a colloquial way without going through a rigorous examination their statements are going to be recorded and used, possibly in some litigation proceeding, and someone may -- or someone may try to spin what they said into some other meaning. I think it's important that they be very clear and concise and exact, which is what I'm trying

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to do here.

Q. All right. Well sir, earlier in this deposition you told us that smokers have -- ought to have -- or smokers -- Strike that.

Earlier in this deposition you told us that people ought to be aware of whatever risks are associated with smoking; right?

A. Yes.

Q. You would agree that it would be important not to mislead people about what those risks are. Isn't that true?

A. Yes.

Q. And you would agree that one of the reasons that it was essential that whatever was said by any of the B.A.T. group members on smoking-and-health issues had to be factual is because if they made statements to the public, the public would -- reasonably ought to be able to rely on those statements; right?

A. I don't believe I said that.

Q. No, I'm asking if that's true, sir.

A. If the public ought to rely on their statements?

Q. Ought to be able to rely.

A. I think the public ought to understand what is being said and the reason why it's being said. If

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someone is in an interview, for example, and they're asked give your opinion on X, Y and Z and they have certain views, I think they're entitled to express those views and I -- and I think the public should understand the context in which -- that that's being conducted.

Q. I guess my question's a little bit different, sir. Keeping in mind that you said that people ought to be aware of whatever risks are associated with smoking, isn't it true that it's reasonable that they should be able to rely on anything that any representative of the B.A.T. group says publicly as being true?

MR. McGAAN: Object, vague.

A. I think if the public understands what's being said, the context in which it's saying, and the reason why the statement's being made, if someone is asked, for example, an opinion do you think that there's absolute scientific certainty smoking causes X and they proceed to give an opinion, like I have, I'm not purporting that that's a representation of safety or that that's a -- a health warning or a safety statement. I'm asked to give a scientific opinion on a factual scientific matter. And so if somebody is asked to give an opinion, I think they're

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entitled to give their opinion, and I think the public should understand the context of that, yes, this person's being asked to give his view, he's giving his view, he's given the basis of it, and if they understand that full context then they can properly determine if they should rely on that statement or not or rely on the other information that's come to them from various other sources.

Q. All right. Well you would agree that it would be improper to mislead the public about the risks that are associated with cigarette smoking.

A. Yes, I think it would be improper to mislead -- intentionally mislead the public.

Q. And you would agree it would improper for Brown & Williamson to intentionally mislead the public about the hazards associated with smoking; right?

A. Yes.

Q. And you agree that it would be a breach of Brown & Williamson' duty to the people who are smoking its cigarettes if they misled those people about what they actually knew about the hazards associated with smoking.

MR. McGAAN: Object, calls for a legal conclusion.

THE REPORTER: We have to go off the record

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and change tape.

(Discussion off the record.)

BY MS. WIVELL:

Q. Sir, let me repeat the question. You would agree it would be a breach of Brown & Williamson' duty to people who are smoking its cigarettes if Brown & Williamson misled those people about what it actually knew about the hazards associated with smoking.

MR. McGAAN: Object, calls for a legal conclusion.

A. Yeah, for that reason I don't know what it -- what you mean by a "breach of duty." I have an opinion on what I think our duties are to our customers, and what I think our duties are is to understand the science regarding the health effects of its products, to understand the allegations which are being made. I think we have a duty to manufacture the best quality products we can, I think we have a duty to provide the best customer service that we can.

Q. Well sir, do you also believe that Brown & Williamson has a duty to speak accurately about what it knows about the hazards associated with smoking and health when it speaks?

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MR. McGAAN: Object, asked and answered.
A. I believe it's appropriate for us to express our understanding of the science, and I believe that the views that I have given here today are an expression of that and are responsible.
Q. I think my question's a little different, sir, and I'm going to move to strike as nonresponsive.
Do you believe that Brown & Williamson has a duty to speak accurately about what it knows about the hazards associated with smoking when it speaks publicly on the subject?
MR. McGAAN: Object. We've been over this, it's asked and answered.
A. I believe Brown & Williamson is entitled to and has -- is obligated to give its full views about smoking.
Q. Well by "full views" you mean it has -- you -- Sorry. Strike that.
By "full views" you would agree that it has an obligation to speak and not mislead when it speaks publicly about the hazards associated with smoking and health.
A. I don't think it would be appropriate --
MR. McGAAN: Objection. The question has been asked and answered a number of times.

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A. I don't think it would be appropriate to intentionally misleads the public about anything, any matter, including smoking and health.

Q. And sir, you understand that Brown & Williamson has an obligation not to mislead the public when it comes to its knowledge about smoking and health; isn't that true?

MR. McGAAN: Object. You keep asking the same question.

A. I can't speak to our obligations because I do think you're asking for a legal understanding or a legal conclusion. I gave you my opinion of what I thought our duties were and what we ought to be responsible for, which includes knowing the science about our product, understanding the allegations, manufacturing the best quality products we can, giving good customer service, and not intentionally making any misrepresentations about any matter concerning our business, which would include smoking-and-health-related matters. But I also believe if someone asks our opinion about the science relating to a particular smoking-and-health-related matter, that we're entitled to give that view even if it's one that appears to be a minority view or not in lock step with the scientific community or anybody

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else who's making statements about smoking and health.

Q. All right. Now sir, you've used the word "minority view," and one that is not in "lock step with the scientific community." I'd like to explore what you mean by that, and let's take the phrase that you used that your view is not "in lock step with the scientific community." What do you mean by that, sir?

A. Well, you read several passages from surgeon general's reports which talked about causation and asked us if we agree that causation has been demonstrated for these various diseases. Now what I explained was our understanding of causation of what the surgeon general meant and what I believe are several possible views of looking at causation, and that our view has been interpreted to be a denial that cigarette smoking may be related to disease or even a statement that it's not related to disease. That's what I meant.

Q. All right. Well you would agree that the vast majority of scientific opinion that has expressed a view on whether cigarette smoking causes disease has concluded that it does; right?

A. Yes. I think that many, many people, many

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scientists, surgeon general's and the scientific community do believe that smoking causes disease and I explained what I -- my understanding is is the concept of what they mean by "cause."

Q. All right. Well sir, just so we're clear here, some of the organizations that have expressed the view that cigarette smoking cause disease include the American Lung Association; right?

A. I believe so.

Q. And you understand that the American Cancer Association has come to the conclusion that cigarette smoking cause disease; right?

A. Yes.

Q. And you understand that the American Heart Association has come to the conclusion that cigarettes are unsafe; right?

A. Yes.

Q. And you understand that the Public Health Association has come to the conclusion that cigarettes cause disease; right?

A. Yes.

Q. And you understand that the American College of Physicians has come to the conclusion that cigarettes cause disease; right?

A. I'm not familiar exactly with their statement

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but I believe I have -- I've heard their statement to that effect, yes.

Q. And you're aware that the American Medical Association has concluded that cigarette smoking cause disease.

A. Yes.

Q. And you're aware that the American Society of Internal Medicine has come to the conclusion that cigarette smoking causes disease; right?

A. Well I'm less familiar with their specific statement, but I would assume that they have made that conclusion.

Q. And in fact you're aware that there's a whole list of other associations that we could talk about who have come to the conclusion that in their opinion cigarette smoking causes disease; right?

A. I would assume there are.

Q. Now sir, would you agree that the vast, vast majority of scientists who have concluded -- or who have addressed the subject have come to the conclusion that cigarette smoking causes disease?

A. I would assume there are.

Q. You agree with my statement; right?

A. That the vast majority of scientists --

Q. Yes.

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A. -- would come to that conclusion? Yes, I have no reason to doubt it.
Q. All right. Can you direct my attention to one scientist who has not received money from the tobacco industry who believes to the contrary that cigarette smoking does not cause disease?
A. I think any scientist who uses the same procedure and uses the same criterion and applies them to the same issues that I have applied them to would find it difficult to make an absolute decision or absolute conclusion looking at it the way I've described. But no, as we sit here today, I can't think of a scientist who disagrees with all these agencies that you just mentioned, or that says I don't think smoking causes cancer or other disease.
Q. Just -- Just so we're clear here, you would agree that you cannot name one scientist, apart from those who have taken money from the tobacco industry, who believed that cigarette smoking does not cause disease --
MR. McGAAN: Object --
Q. -- who has considered the subject.
A. Well first of all --
MR. McGAAN: Object. Asked and answered and the answer was clear.

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A. Also your question is implying we have taken the position that cigarette smoking does not cause disease and, as I have stated several times, we don't take that position and we don't say that. We've never made health claims or -- we are not taking the position that smoking does not cause disease. We're saying it may cause disease. Secondly, there have been no other scientists who have been in -- who've had to wrestle with the same problem we have had to, which is to determine what aspects of our product need to be modified to respond to the issue and what sort of evidence we would need to marshal up to convince the public-health authorities and the external scientific community that in fact a product modification has been shown to result in a safer cigarette or a safe cigarette.

So yes, our position seems at variance, but then again we're in a unique position of having to actually deal with product modification --

(Interruption by the reporter.)

A. -- to respond to the smoking-and-health issue, and so we do look at it differently and we do use a different assessment criteria than all the other groups that you just mentioned.

Q. Okay. Well one thing I'm kind of curious

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about. You say that you're in a "unique position." Have you gone back and reviewed Brown & Williamson's in-house studies that it conducted on the subject of smoking and health?

A. I've reviewed some of them.

Q. All right. Well -- And I'm -- Just so we're clear here, I'm not talking about studies done by research labs or at BATCo.

Have you looked at studies that were done in-house at Brown & Williamson that addressed toxicological issues?

A. In-house, you mean like done -- conducted on our premises?

Q. That's right, sir.

A. I can't recall any.

Q. So it would be fair to say that in the past 50 years Brown & Williamson has not done any in-house toxicological studies that addressed the smoking-and-health issue? Is that right?

MR. McGAAN: Object, mischaracterizes the testimony.

A. Well before --

MR. McGAAN: Given the parameters counsel put on it earlier.

A. Before doing that sort of study we would assess

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the need to do that. We have available to us the research expertise of outside contract labs and of BATCo, and BATCo, over the past 40 years, has done an enormous amount of research in the whole area of product modification and assessment of modified products that were -- were designed to respond to the smoking-and-health issue. We've had access because we -- as we talked about before, we share that information. We've done an enormous amount of work. So given that we have access to that, why would we initiate and start up our own effort if we can make use and gain access to the information available to us through this other source?

Q. Well sir, let me just ask my question again, make sure we're on the same wavelength.

Would you agree that in the past 50 years Brown & Williamson has not done any in-house toxicological studies that addressed the issue of smoking and health?

MR. McGAAN: Object, mischaracterizes the testimony.

A. If your question is, has Brown & Williamson conducted in-house research, meaning research conducted within their -- our -- the confines of our buildings and our property and so forth, my answer

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is, we wouldn't do that unless we felt there was a need to. We did not feel there was a need to because we had access to that sort of research through our sister company, and we -- we did that through -- we were able to share the research, we helped fund it in many cases, and so it was a collaborative effort and we had access to that information. There is no need for us to start up that effort and those expertise and those resources was already built up and available to us elsewhere.

Q. So the answer to my request is: No, Brown & Williamson has not done any in-house toxicological studies that address the smoking-and-health issue in the last 50 years; right?

MR. McGAAN: Object, the record reflects the answer to your question three times.

A. That's not what I said.

Q. I understand you're talking about sharing information. I just want the jury to understand clearly Brown & Williamson has not done any in-house toxicological research that addressed the smoking-and-health issue, has it, sir?

MR. McGAAN: Object. Move to strike counsel's comments, dramatically mischaracterizes the testimony.

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A. What I said was is what I said, which is, you asked me have we done something and I said, well before setting out to do something you assess the need to do something. We did that, we had access to that information through another source and through those capabilities for another source, we took advantage of that, and we saw no reason, there was no productive reason to -- to do that within our own -- within our own buildings or our own property or our own control.

Q. Well sir, isn't it a fact that Brown & Williamson, for example, did not conduct in-house inhalation studies because they were considered dangerous to Brown & Williamson?

A. Not to my knowledge.

Q. Sir, showing you what's previously been marked in this litigation as Plaintiffs' Exhibit 940, this is a memo that begins with the Bates number 500003491; right?

A. Correct.

Q. And the cover page is a letter from R. A. Sanford to Alan Heard at Group Research and Development Centre at BATCo; right?

A. That's correct.

Q. And according to the first page, Mr. Sanford had

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-- had enclosed a completed questionnaire directed to position papers for an upcoming meeting; right?

A. Yes.

Q. And if we take a look at the second page of the document, it refers -- or it lists a table; right?

A. Yes.

Q. And it says there, "Research Conference 1980, Sea Island, Ga."

A. Yes.

Q. And under the subject of "Irritation and inhalation of smoke," it's listed as a 3 in importance of group research according to this table; right?

A. Yes.

Q. And if we look down at the bottom, we see the things that are listed as a 3 are those which have little or no interest as far as this table is concerned; right?

A. Yes.

Q. And A --

And across from irritation and inhalation of smoke studies there is a column that includes comments; right?

A. Yes.

Q. And it says there, "Dangerous area. Please do

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not publish or circulate. No more work needed on biological side"; right?
A. That's what it says, yes.
Q. Do you have any idea why -- Strike that.
Have you spoken with Dr. Sanford or Mr. Heard about this exhibit?
A. I have never met Mr. Sanford, I only met Mr. Heard once, and it was in a social sort of festive environment. No, I have never discussed this with either of them.
Q. So you don't know what is meant by this chart when it refers to irritation and inhalation of smoke studies as being a dangerous area.
A. No, I don't know what that means.
Q. Well sir, let me ask you this. Can you direct me to any research that was done by Brown & Williamson through a contract lab that looked at inhalation of cigarette smoke?
A. From my review of the documents, it appears that very early on, in the mid-'60s, perhaps, some inhalation work was done in rodents, looking at acute toxicity.
Q. All right. And just so we're clear here, "acute toxicity" means what, sir?
A. Basically the toxicological response that is

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observed immediately following very, very high dose exposures to whatever substance you're interested in.

Q. All right. Just so we're clear, the work that you referred to was part of Project Boston Hilton and Project Atlanta Hilton; right?

A. I believe so.

Q. And that is work that was done at Brown & Williamson's request at Battelle labs in Columbus, Ohio; right?

A. From my recollection, yes.

Q. And just so we're clear, you would agree that the work that was done at Battelle labs on behalf of Brown & Williamson was exposure of rodents to cigarette smoke.

A. Yes.

Q. And you know that the results of that -- those studies showed that all of the rodents died within 20 minutes, essentially; right?

A. I know that the endpoint was lethality and death and my understanding or recollection is that it was variable, that the length of time it took for the animals to die was variable, depending upon the exposure conditions and the product being evaluated.

Q. Now sir, typically what's done with toxicological experiments such as the one we've just

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been discussing is that once the animals die, autopsies are done of various -- of the animals in order to try and determine the effects of the -- of the exposure on the various organs of the animals; right?

A. For acute toxicity, no, that's not typical. It's usually not done because the sole endpoint is lethality, so when you do an acute toxicity test, and the most common one is like an LD 50, which stands for the lethal dose which kills 50 percent of the population of annals. Typically the animals are dosed by some means, and then lethality is observed and that -- that's -- that's the end of it.

Now of course a pathological examination could be included if someone decided they wanted to do that but that's not typical.

Q. And you understand that the folks at Battelle recommended to Brown & Williamson that toxicological examination be done of the organs of the mice who had died as a result of this exposure to cigarette smoke.

A. Pathological examination, you mean?

Q. Yes, sir.

A. I do recall them making a number of recommendations of potential follow-up work to do,

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and that was among the recommendations that they made.

Q. And Brown & Williamson did not have that pathological examination done of the organs of the animals who had been exposed to cigarette smoke and died; right?

A. Not to my knowledge.

Q. Now sir, Brown & Williamson did not do any inhalation tests after those -- I'm sorry, strike that.

Brown & Williamson did not ask any research lab after those experiments that we've just been discussing were completed, to do any more inhalation tests; right?

A. Not that I'm aware of. By that time I believe that the work at -- that was being coordinated through BATCo was -- was well underway and was a fairly large program and we were -- there would be no need to -- to do any additional work given that that program was -- was the size that it was.

Q. Now sir, did Brown & Williamson ever share with the public the results of the project Boston Hilton or project Atlanta Hilton studies?

A. Not to my knowledge.

Q. Now one of the purposes of that program was to

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determine whether cigarette smoke was toxic -- Strike that.

In those experiments, different kinds of American cigarettes were used; right?

A. That's my understanding.

Q. One of the purposes of the experiments in project Boston Hilton and project Atlanta Hilton was to determine whether toxicity varied between these different types of American cigarettes.

A. That's my understanding, yes, to see if a test could be developed that could distinguish biological response between different types of products, yes.

Q. And the conclusions of the study were that one could not, in this experiment, distinguish between the toxicity of the different cigarette smokes; right?

A. That's my understanding, and given that the --

My understanding of this is that these were attempts to develop measures to measure progress in a product modification program that ultimately would lead to a safer cigarette or would be viewed as a safer cigarette. Since the objective was to develop a measure of that and the particular test that was being explored didn't seem to do that, my understanding is that's why that research was

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abandoned, is because it wasn't effective at being able to distinguish differences in products.

Q. But there was one product the exposure to which the -- Strike that.

There was one cigarette that the mice seemed to last longer or live longer after they were exposed; right?

A. I believe -- I remember a variable response, yes. It wasn't all just 20 minutes. Some maybe died after 15 minutes, maybe some died after 40 minutes. I don't remember the exact numbers, but if we had the documents I could be more specific.

Q. And do you remember the cigarette that typically the mice lived longer after the exposure to smoke?

A. No, I don't.

Q. All right. Maybe I can find that and show it to you tomorrow.

A. Okay.

Q. Sir, we had looked at this Exhibit 317, the Legal Considerations in Smoking & Health document a bit earlier.

(Discussion off the stenographic record.)

Q. All right. You have that in front of you?

A. Yes.

Q. At the bottom of this document, it says, "If in

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doubt, companies should not hesitate to consult their in-house counsel, or B.A.T. Industries Legal Department, who have up-to-date information on the legal situation affecting the tobacco companies"; right?

A. Yes, that's what it says.

Q. Sir, you told us earlier that your expert report in this case was essentially drafted by lawyers; is that right?

A. They did the actual scribing after conducting interviews with me, and hearing what I had to say and then I referred them to various documents and research and so forth in support of that, but ultimately it was scribed by attorneys, or that's my understanding, and then we went through an iterative process of reviewing it, refining it, revising it and then ultimately agreeing on the final draft. The final agreement was mine.

Q. All right. Sir, when you say they scribed it, do you mean they wrote it?

A. Yes.

Q. And when you're talking about this iterative process of reviewing it, what are you talking about?

A. They developed the initial draft, sent it to me for review to see if it was consistent with my

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understanding and my belief. In cases where I wanted to have changes made, I made them and recommended them, they were made. And that went back and forth once or twice and then finally when I agreed with the final document in its final form, then that's what we went with.

Q. Well sir, let me show you a document that Wally Hughes sent to Dr. Green at British-American Tobacco Company. It's been marked as Exhibit 318 in this litigation.

A. Okay.

Q. For the record, it begins with the Bates number 110078077; right?

A. Yes.

Q. This is a letter that Wally Hughes sent on March 14th, 1977.

A. Yes.

Q. Now at the time Dr. Hughes wrote this, he was senior vice-president of marketing, research and development for Brown & Williamson; right?

A. I don't know, but I'll accept your representation.

Q. Well it says that at the top of the letterhead, doesn't it, sir?

A. Oh, yes, it does. Sorry.

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Q. Dr. Hughes is now dead; right?
A. I don't know.
Q. Well have you ever met Wally Hughes?
A. No.
Q. You understand he eventually went on to become president and chief executive officer of Brown & Williamson?
A. I knew he was fairly high up there; I didn't know he got that high.
Q. All right. Well sir, why don't you take a moment and read this document.
A. Okay.
Okay.
Q. All right. This letter was written in response to a paper on causality which Dr. Green had forwarded to Mr. Hughes; right?
A. It appears so.
Q. And Dr. Hughes said, The paper on causality is an interesting one but personally, since I would view it as more -- more as a corporate policy paper, I feel that discussions at the research conference would not be useful; right?
A. That's what it says, yes.
Q. Now just so the ladies and gentlemen understand, there are research conferences which are held among

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the representatives of the various B.A.T. group companies on a periodic basis; right?

A. Yes.

Q. And you have attended some of those meetings, haven't, sir?

A. I've attended some, yes.

Q. You have attended meetings of a group called the Scientific Research Group.

A. Yes.

Q. And they're held throughout the world; right?

A. Yes.

Q. And members from all of the B.A.T. group tobacco companies attend those meetings, don't they?

A. There's representatives from the major B.A.T. companies, yes.

Q. All right. And you understand those are the kinds of conferences that Dr. Hughes is referring to here in this letter that's Exhibit 318.

A. No.

MR. McGAAN: Object. I'm sorry.

THE WITNESS: I'm sorry.

MR. McGAAN: Object to the form.

A. That's not my understanding. This Rio conference, I don't believe -- Well I don't know. There's no way to know what kind of conference

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they're talking about. There are many types of conferences held that cover anything from cigarette design, to flavor applications, to how to maintain a cigarette-making machine. So I don't know, I can't -- all I can tell is that this conference apparently was going to occur in Rio and what its topic was I can't tell from this document.

Q. Fair enough. You would agree, sir, though, that there have been for years within the B.A.T. group conferences which are held on a periodic basis at which various research topics of interest to the B.A.T. group tobacco companies are discussed.

A. Yes.

MR. McGAAN: Object. That was asked and answered. You know that.

Q. Now sir, Dr.-- or, I'm sorry, strike that.

Mr. Hughes goes on to say, "I think you know the position in the U.S. is still focused around the existence of "high risk 'wipeout' liability; this leads to the continuing dominance of the legal attitude." Right?

A. That's what the document says.

Q. And sir, isn't it true that you have known -- I'm sorry. Strike that.

Isn't it true that you learned from the time

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that you joined Brown & Williamson that legal issues dominated what anyone in the company said on the issue of smoking and health?

MR. McGAAN: Object, asked and answered.

A. Well I mean obviously with an industry that's got as many lawsuits as we do, the lawyers are interested in any matter that has to do with litigation. I wouldn't characterize that, though, as what you just said, which is it dominated -- I forgot what you said, it dominated our view on smoking and health. But certainly lawyers are interested, as I said, in any matter that has any bearing on the existing litigation.

Q. Well sir, isn't it true that as a result of the litigation that the B.A.T. group has been involved with, anyone at all connected with the group has to be particularly circumspect in any discussions -- discussions of smoking and health?

MR. McGAAN: Object, vague, lacks foundation.

A. Could you please rephrase your question in a different way? I don't know what you mean by "particularly circumspect."

Q. Well sir, isn't it true that it's been well known throughout Brown & Williamson that nothing

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could be said publicly by anyone in the company which could be construed in any way as an admission that smoking is a primary or contributory causes of disease?

A. I don't know if it's well known or not. I don't know how I would know that or how I'd measure that.

Q. Well sir, it was discussed at these conferences that you went to, wasn't it, that folks had to be particularly careful about what they said or they wrote so that it couldn't be used against Brown & Williamson in lawsuits here in the United States?

MR. McGAAN: Object, lacks foundation.

A. There is an awareness that we, when we write, we need to avoid ambiguities, we need to not be vague, we need to not be casual or it's not appropriate. And it's not just considering lawsuits; it's in any scientific endeavor. You can't be speculative or loose. You should be rigorous in what you say and your thought process for any number of reasons, including among them being careful on how a -- a nonrigorous or a casual statement or a speculative statement without scientific basis could be used in a litigation proceeding. There is awareness about that, yes.

Q. And sir, that topic has been discussed at

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scientific meetings you've attended, hasn't it?
A. Oh, I can't -- I mean it's been discussed in various forums, probably scientific meetings as well. But I'm -- I don't want to construe this to say we were told what to say or what not to say, but just be aware that there are many lawsuits and people can say things in very casual and loose ways. We need to be very careful about what we say, that we understand what we're saying, and that we're rigorous in our thought process and our examination.
Q. Well sir, part of that being rigorous was to develop a political sensitivity in the area of smoking and health, wasn't it?
MR. McGAAN: Object, vague.
A. I have no idea what you mean by that, by "political sensitivity in smoking and health."
Q. Well showing you what's been marked as Plaintiffs' Exhibit 937 previously in this litigation, this is a document that bears the Bates number 107469003 as its first Bates number; right?
A. Yes.
Q. Now this is a document that was written by LCFB according to the initials at the top of the page; right?
A. I -- I assume so. I guess that's the author as

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opposed to the typist.
Q. All right.
A. There's a signature at the bottom but I can't make it out.
Q. All right. Do you understand that LCFB are the initials for Lionel Blackman?
A. No.
Q. Well --
A. But I don't dispute it.
Q. All right. Dr. Blackman followed Dr. Green as head of research and development at Brown & Williamson, didn't he?
A. I don't know if he did or not.
Q. All right. Well what did you understand Dr. Blackman's position to be?
A. I don't really have a good understanding of what his position is other than he was an employee of B.A.T. or BATCo.
Q. All right. Why don't you take a moment and read this document.
A. Okay.
Q. By the way -- I'm going to interrupt you for just a second -- Dr. Blackman followed Dr. Green as head of research and development for BATCo, didn't he?

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A. I don't know.
Q. Okay.
A. You tell me. My understanding is that he held a high position within R&D, a technical position within BATCo, but I don't really know the timing and the organizational structure. I haven't had an opportunity, really, or a reason to be familiar with that.
Q. All right. Thank you.
A. Okay.
Q. All right, sir. You've now read Exhibit 937.
A. Yes.
Q. This document concerns a visit which the author had made to ITL in Montreal and also to Brown & Williamson in Louisville; right?
A. Yes.
Q. ITL is the Canadian subsidiary of -- within the B.A.T. group; right?
MR. McGAAN: Object, lacks foundation.
A. Well I know that there's an association; I don't know if they're a wholly-owned subsidiary. I know that there is a business relationship, and I couldn't give specifics about it. I don't believe it's a wholly-owned subsidiary, but just how much is, I don't know.

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Q. All right. This document says, "Both B. & W. and I.T.L. made it clear that GR&DC will be supported positively in the future provided attention is given to a number of points"; right?
A. Yes.
Q. And then there are several points listed on the first page.
A. Yes.
Q. And among those points is point e); right?
A. Yes.
Q. It says, "We become more 'politically sensitive" in the areas of smoking and health, e.g., reporting of 'nasties' and biological studies generally. (Remember quote" -- sorry. Strike that. Let me start again.
It says, "We become more 'politically sensitive" in the area of smoking and health, e.g., reporting of 'nasties' and biological studies generally. ('Remember what pays all our salaries')"; right?
A. That's what it says, yes.
Q. And sir, you would agree that there was a concern expressed at research meetings that you attended that everyone be political -- politically sensitive in what they said and wrote regarding the area of smoking and health; right?

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MR. McGAAN: Object. He answered that question.

A. Not as you characterize it, but let me give --

The best way to give an example of the way this matter was discussed would be with an actual example.

MR. McGAAN: Let me -- Let me just interject with respect to the privilege issue, Dr. Appleton. If in talking about anything regarding legal implications you find yourself discussing comments made by lawyers, you need to check yourself and consult with me. But go ahead and answer the question otherwise.

THE WITNESS: Okay.

A. Sometimes scientists will say things that is speculation or that they are basically just parroting a view given by the public-health authorities, and it may be without any foundation or basis, and so if someone says yeah, we reported the existence of compound X in smoke, which is a known carcinogen, for example, they may say that and then some someone might say, well what do you mean by that? And without being clear what's meant by that, it could be interpreted in a number of ways. It could mean it has been shown to causes cancer in animals, which may

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not mean it causes cancer in humans, or it can mean a number of things. If the surgeon general said that this is an important constituent within smoke but if you ask does he say that's what causes disease, no that's not what he says. He just says it's an important constituent.

It's not uncommon from time to time to see people using wording in a nonrigorous and exacting and scientific way, they're just sorting of saying things, and so we have had discussions amongst ourselves, amongst scientists saying -- along the line of, yes, we need to be exact in what we say and make sure what we say is truly backed up by the evidence and we don't go on and make any speculative statements that extend outside the boundaries of what the evidence can support. So I mean discussions have been held like that but it's not like it happens like every day or at every meeting or it's a continuous thing. Discussions have arisen like that out of recognition and acknowledgment of the significant legal activity that's going on.

Q. And you would agree that as a result of the acknowledgment of the significant legal activity that was going on in the '80s, that actually reports from BATCo were sent not to Brown & Williamson but to a

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lawyer in Louisville.
A. I don't know that, and I don't think this document says that.
Q. Well in your review of various Brown & Williamson documents, have you come across the documents that talk about the fact that BATCo reports should be sent not to Brown & Williamson but to a lawyer at Wyatt Tarrant & Combs in Louisville?
A. I haven't seen a document or I haven't been exposed to that -- had any direct exposure to that either through conversations or meetings or documents.
Q. Well sir, let me ask you this question. In preparation for your deposition today, in addition to reviewing documents, have you reviewed any of the testimony that's been given by any of the witnesses in this case?
A. Some of it.
Q. Which witnesses' testimony have you reviewed?
A. I reviewed portions of Lance Reynolds' deposition and I reviewed portions of Chris Proctor's deposition.
Q. Anyone else?
A. No.
Q. Have any portions of testimony been read to you?

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A. No.
Q. Sir, showing you what's previously been marked as Plaintiffs' Exhibit 941, this is a document entitled "Conference on Smoking and Health Issues, THE MEDICO-SCIENTIFIC BACKGROUND," by Dr. D. G. Felton; right?
A. Yes.
Q. For the record, it begins with Bates number 100449418.
A. Yes.
Q. Now sir, this conference on smoking-and-health issues, it's one of those conferences that took place where representatives from the various B.A.T. group tobacco companies got together and talked about common issues; right?
MR. McGAAN: Object, lacks foundation.
A. I don't know.
Q. You've not seen this document before, sir?
A. No.
Q. All right. Would you take a few moments and review the first six or seven pages.
MR. McGAAN: I've almost got a five thirty in case you're not aware of your timing.
MS. WIVELL: All right. Let me finish with this if he can read it and we can ask a couple

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questions.

MR. McGANN: Yeah. Oh, yeah. I just wanted you to be aware. I don't care.

A. Well I'm reviewing very briefly, not reading in detail. What I'm looking for is information to address your question, which is, this is a conference with all -- with lots of different representatives from BATCo companies and I don't see any indication of that in here, but I have to say I've scanned it very, very briefly.

Q. Well this is a presentation made by a BATCo employee; right?

A. I don't know. Well it looks like the text of a presentation that was given by Dr. G. Felton, who's a BATCo employee, but who was there at the conference, I don't know.

Q. All right. Now sir, would you turn to the page that ends with Bates number 423. There it talks about again the subject of smoking and health its relationship to legal issues; right?

A. Okay. Which -- You mean the third paragraph? Are you -- Where are you directing me to?

Q. Well sir -- All right. Well let me begin. It says in the third paragraph, "Under U.S. Law, lawyers are permitted to bring actions against manufacturers

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on behalf of plaintiffs, claiming very large damages, on the basis that, if they succeed, they will recover a percentage fee based on the damages. If no damages are recovered, there is no fee"; right?

A. That's what it says, yes.

Q. And that's the contingency fee; right?

A. I guess.

Q. All right. Now it goes on to say, "Because of these legal aspects, anyone at all connected with the industry has had to be particularly circumspect in any discussion of smoking and health"; right?

A. That's what it says, yes.

Q. And it goes on to say, "Nothing can be said publicly and nothing can be held on Company files which could be construed in any way, as an admission that smoking is a primary or a contributory cause of disease."

A. That's what it says.

Q. Now sir, when it says here "nothing can be held on Company files," we're talking about this concern over the political sensitivities, what -- of what's being written in the reports that you mentioned earlier, isn't it?

MR. McGAAN: Object, lacks foundation. You're asking him to interpret this document.

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A. I'm sorry, could you repeat your question again?
Q. Yes, sir. Now here when it says that "Nothing can be held on Company files which could be construed in any way as an admission that smoking is a primary or a contributory cause of disease," that's this -- again a reference to this continued political sensitivity you were discussing earlier; right?
MR. McGAAN: Same objection, lacks foundation with regard to this document.
A. Well I don't see a connection between that and this earlier statement. It seems to follow this previous statement that you just read.
Q. Well let me ask you this. Isn't it true that within Brown & Williamson nothing can be said publicly and nothing could be -- can be put into company records which could be construed in any way as an admission that smoking is a primary or a contributory cause of disease?
A. That's not been my experience since I've been with the company.
MS. WIVELL: Why don't we go off the record.
THE REPORTER: Off the record, please.
(Deposition adjourned at approximately

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5:29 p.m.)

C E R T I F I C A T E

I, Debby J. Campeau, hereby certify that I am qualified as a verbatim shorthand reporter; that I took in stenographic shorthand the testimony of SCOTT APPLETON at the time and place aforesaid; and that the foregoing transcript, Volume I, consisting of pages 1 - 293, is a true and correct, full and complete transcription of said shorthand notes, to the best of my ability.

Dated at Lino Lakes, Minnesota, this 22nd day of September, 1997.

DEBBY J. CAMPEAU, RPR

Notary Public

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S I G N A T U R E P A G E

I, SCOTT APPLETON, the deponent, hereby certify that I have read the foregoing transcript, Volume I, consisting of pages 1 - 293, and that said transcript is a true and correct, full and complete transcription of my deposition, except per the attached corrections, if any.

(Please check one.)

____ Yes, changes were made per the attached

____ (#) Signature Page Addendums.

____ I have made no changes.

SCOTT APPLETON

Deponent

Sworn and subscribed to before me this day of , 199__.

Notary Public

My commission expires: (DJC)

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